AUDIO VISUAL COMMUNICATION REVIEW

Richard P. Runyon
Joseph H. Kanner
Present Status of Signal Corps Television Research

Percy H. Tannenbaum
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Donald Auster
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Ralph R. White
Planning Films That Teach

Gaither Lee Martin
Charles H. R. Over
Therapy By Television

Departments:

- World Communication
- Film
- Book Reviews
- Research Abstracts

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CONTENTS

Articles

- PRESENT STATUS OF SIGNAL CORPS TELEVISION RESEARCH 83
  RICHARD P. RUNYON
  JOSEPH H. KANNER
- MUSIC BACKGROUND IN THE JUDGMENT OF STAGE AND TELEVISION DRAMA 92
  PERCY H. TANNENBAUM
- CONTENT ANALYSIS IN AV COMMUNICATION RESEARCH 102
  DONALD AUSTER
- PLANNING FILMS THAT TEACH 109
  RALPH R. WHITE
- THERAPY BY TELEVISION 119
  GAITHER LEE MARTIN
  CHARLES H. R. OVER

World Communication

- MASS COMMUNICATIONS IN TECHNICAL COOPERATION 131
  LAWRENCE J. TATE
  HARRY L. CARR

Film

- NEW DIMENSIONS IN AUDIO-VISUAL DESIGN 142
  ROBERT W. WAGNER

Book Reviews

- PARKER, EVERETT C.; BARRY, DAVID W.; and SMYTHE, DALLAS W.
  The Television-Radio Audience and Religion 148
  Reviewed by James A. Peterson
- JOHNSON, DONALD M.
  The Psychology of Thought and Judgment 157
  Reviewed by Franklin Fearing

Research Abstracts

- *Training Film Evaluation: FB 254—Cold Weather Uniforms* 159
  Charles J. McIntyre
- *The Validity of Pictorial Tests and Their Interaction with Audio-Visual Teaching Methods* 159
  Edwin F. Lefkowith

- *Evaluation of Motion Pictures To Simulate Reality in the Thematic Apperception Test* 160
  Charles J. McIntyre
- *The Effects and Interactions of Rate of Development, Repetition, Participation and Room Illumination on Learning from a Rear-Projected Film* 161
  Philip Ash and Nathan Jaspen
- *The Application of Sound Motion Pictures for Recording Billet Analysis Information* 161
  Charles J. McIntyre and Edward P. McCoy
- *Evaluation of Film: Military Police Support in Emergencies (Riot Control) TF 19–1701* 162
  Instructional Film Research Program
- *The Relation of Some Measures of Ability to Measures of Learning from Sound Motion Pictures* 162
  Robert Radlow
- *Effectiveness of Several Methods of Repetition of Films* 163
  Bernard Rimland
- *Effects of Film Narration Type and of Listenability Level on Learning of Factual Information* 163
  Beryl Bruce Blain
- *Contributions of Instructional Films to the Teachings of High School Science* 164
  Oreon Pierre Keeslar
- *The Evaluation of Instructional Films by a Trained Panel Using a Film Analysis Form* 165
  L. P. Greenhill
- *The Recording of Audience Reactions by Infra-Red Photography* 166
  L. P. Greenhill
- *Design in the Educational Films* 167
  Robert Walter Wagner
- *A Study of the Audio-Visual Administration and Supervisory Functions in Selected Schools of Vocational and Adult Education in Wisconsin* 168
  David P. Barnard

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PRESENT STATUS OF SIGNAL CORPS TELEVISION RESEARCH

• RICHARD P. RUNYON
• JOSEPH H. KANNER

The research studies on the use of television in Army basic training conducted by the authors and reported in the last three issues of this journal have made a distinct contribution to our knowledge of the factors operating when television is used for instruction. Previewed here is a report on the continuing research in this area.

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THE GENERAL effectiveness of television as an instructional medium within both military and civilian settings is an established research fact (1, 2, 4, 5, 6, 8, 9, 10). The early pioneering studies conducted under contract with the Naval Special Devices Center demonstrated that televised instruction, mainly of lecture-demonstration material, compared favorably with regular instruction (3, 5, 8, 9). In the more recent HumRRO study (6, 10), televised presentation of 14 different hours of instruction, involving 17 different written and performance tests, were compared with regular instruction under controlled conditions of presentation and testing. In no instance did regular instruction even approach significant superiority over televised instruction, but in 5 of 17 comparisons television was found to be significantly superior. With low intelligence groups, television superiority was more pronounced—10 out of 17 comparisons reliably favored television. Civilian studies, which suffer somewhat from the difficulties of achieving careful control over relevant experimental and sampling

variables and are limited in the variety of subject matters which are studied, nevertheless show considerable agreement with the military findings (1, 4).

Recognizing the fact that research has established *generally* the effectiveness of educational TV but has not provided *specific* answers to many practical problems of presentation and utilization, the Signal Corps is conducting a long-range research program concerned with the development of television as a teaching and training medium. This program is pursuing the suggestive leads of our previous research (2, 6, 7, 10), as well as meeting military training requirements. A number of research objectives should find extensive applicability to civilian uses of the television medium while others may have only military value.

We preceded the development of the program with a careful analysis of the research which had been accomplished in the field of educational television in terms of research adequacy, generality of findings, and nature of problems answered. We soon realized that much of the research, even if adequate from a scientific point of view, was extremely limited in terms of the questions posed by the researchers and the problems answered. Most researchers were content to ask the general question, "How does television instruction compare in effectiveness to regular instruction?" Since the research questions were limited in scope and in imagination, so also were the answers. Our own research pointed out the inadequacy of the general question (6, 7, 10). We found, for example, that the effectiveness of the medium was differential according to the subject matter televised, the presentational techniques employed, and the intelligence level of the audience (6, 10). Accordingly, the present research program reflects our desire to obtain specific answers to specific problems in such a way that generalization is permitted and applications increased rather than to obtain general answers to general problems of little specific applicability.

In developing the program, a number of general areas were selected as requiring research information. The selection stemmed mainly from two sources: (a) reports and observations of critical training problems within the Army, and (b), Signal Corps' television experiences at the Signal Schools at Fort Gordon and Fort Monmouth. In the following pages we will briefly summarize the 10 area program of television research which is presently in progress and, to illustrate our general approach to the problems, we

will reproduce in some detail the experimental procedures, design, and statistical analyses employed in a project currently being conducted at The Southeastern Signal School, Fort Gordon, Georgia.

Ten Major Areas of Research

1. *Emergency or mobilization use of instructional television.* In the event of war and other emergency situations, it is expected that certain stresses and unusual demands will be made upon military training. These include marked increases in the number of trainees, shortages in trained instructors, shortages in training facilities, and possible dislocation factors necessitating training of geographically scattered groups. The promising potential of television for mitigating these problems must be translated into practical "know-how" information in adapting to these conditions. As already pointed out, it is well established that the transmission of many types of conventional instruction can be done without loss of teaching effectiveness. It has not been established to what extent television can assume the instructional burden over varying periods of time. Our efforts in these areas consist of comparing regular instruction with televised instruction delivered "intensively" over considerable periods of time. In a current project, discussed later in the paper, we are presenting on television an entire week's block of instruction concerned with principles of electricity. We are also developing rapid techniques for translating conventional on-going instruction to television presentation. Prompting equipment is being employed in these efforts because of the excellent results achieved with this instrument in reducing television preparation time (2, 7). We are also developing rapid transcription methods. Of course, other aspects of our program related to instructor training methods, simplified training aid requirements, contribute to the use of television for these critical situations. This information will also have applicability to routine military and civilian uses of educational television. The effort and time requirements reported for preparing television teaching appear excessive and hinder the use of the medium. We expect the results of our efforts in this area to reduce materially these requirements.

2. *The development of effective television teaching methods.* To the psychologist or educator, this area would probably be considered the most important. In it we will pursue those variables which appear important in the acquisition and use of learning. Such factors as participation, repetition, spacing of practice and effort,

auditory-visual stimulus relationships, and similar aspects of learning will be developed in their relation to television teaching and learning.

3. *The development of television for reducing training time.* Our research and application experience has indicated the possibility of achieving marked reductions in training time through the use of television (2). In addition to the administrative advantages of television which have permitted such reductions by eliminating cumbersome scheduling and logistical requirements, specific television teaching factors contributing to this area will be evaluated. Of course, findings in other research areas of this program will contribute to the objective of reducing training time.

4. *Exploration of trainee variables related to television teaching.* We have found that television does an effective teaching job with low aptitude trainees (6, 7). The general problem of relating various trainee or student aptitudes to various television teaching materials will be explored. A specific important problem will be the effects of "intensive" television teaching upon trainee learning. There is presently no knowledge on the effects of receiving television instruction over extended periods of time comparable to that for conventional instruction. The increased use of television for teaching would make such information important. Other aspects of this area will involve obtaining measures of attitude and learning under various study conditions.

5. *Television instructor requirements.* Our previous research (2) has already uncovered methods for rapidly training qualified television instructors. Future research will involve extending the applicability of these methods to different subject matters and teaching requirements. In addition, instructor variables, as revealed by student test performance and attitude measures, will be explored.

6. *Instructor or student intercommunication factors.* The role and value of two-way communications systems for television teaching will receive further attention. Our experience to date indicates that for many subject matters, the use of participation procedures, rhetorical questions, and similar techniques can be substituted for question and answer methods. However, there are many subject matters of a discussion or seminar format which appear to require two-way communication. For example, in medical television, the high level of the instruction and of the students make it likely that student questions contribute new and important dimensions to a

subject under discussion. Conceivably, failure to establish two-way communication facilities could result in the omission of valuable material from the instruction. Therefore, subject matters of this type and the use of this communication method will be studied.[1] In addition, the role of question and answer procedures in new subject matters will be evaluated from a learning and administrative viewpoint.

7. *Television transmission of films, slides, and other pictorial products.* Concurrently, the television facilities at the Signal Schools are transmitting trainee films simultaneously to a number of classrooms. Administratively, this transmission has increased the number of films used and the size of the audience. The instructor also has been relieved of many of the laborious details in using conventional film projectors since he has only to turn on the television receiver. We plan to explore such factors as the effects of different film qualities, when shown over television or by conventional projection, upon learning. Additional applications of television transmitted film will be investigated.

8. *Training aid requirements for television teaching.* The development of training aids, charts, and similar materials adapted to television requirements is important. In our research and application of television, we have consistently found that while existing aids can be employed, simpler, less expensive ones are just as effective. Comparisons will be made between conventional and specially prepared aids of various types with respect to teaching effectiveness. Emphasis will be placed on such inexpensive methods as blackboards, and vuegraphs. The use of actual equipment in military training will be explored. The construction of training devices or "mock-ups" to enlarge upon the size and details of military equipment is a continuous and often expensive requirement. Since the close-up feature of television can accomplish the same effect, it is possible to eliminate these aids by using actual parts or equipment in teaching. Concurrently, there will be a study of the general role and requirements for training aids in military training.

9. *The development of television as a testing medium.* Elsewhere (10) we have expanded upon requirements for testing television teaching and the use of television for this purpose. The

[1] A research program is being formulated at Walter Reed General Hospital by Dr. Kanner to investigate this and similar problems related to medical television.

flexibility of the medium for presenting information shows promise for development as a testing device. Recognition learning, knowledge of interrelationships among moving parts, sequential problem-solving behavior are examples of where the medium can be used for testing student learning. Conventional multiple choice testing appears adaptable to television use with such advantages as standardization and reduction of administrative problems.

10. *Development of film and kinescope teaching applications.* Mention has already been made of the use of television for transmitting film information. Kinescopes, which are film recordings of live television presentations, have important potential uses in teaching. When used for review purposes (6), they succeeded in reinstating learning lost by forgetting. In addition, the performance of low-aptitude personnel receiving this review approached that of high-aptitude personnel who did not receive it. We plan to further investigate this application of kinescopes. For example, instead of using kinescopes which completely review previous instruction, evaluation will be made of shorter ones which will recapitulate only the highlights or key concepts of the original instruction. Other applications to be investigated will be the use of these television recordings for dissemination of new military developments and the replacement of specific segments of instruction. Comparisons will also be made of the effects of any quality differences under different projection conditions of standard films and kinescopes.

Within these 10 general areas of research interest, specific studies will be designed. Any particular study may, of course, cut across a number of these areas. For example, the on-going study presented in the following section will bear upon the areas of instructor training, learning variables, trainee attitudes, improvements in teaching effectiveness, reduction in teaching time, and the use of kinescopes. Additionally, television testing methods will receive attention. Basic to any study will be intensive analyses of test items and development of aptitude-learning relationships.

Experimental Studies on the Intensive Use of Television in Training, Reduced Teaching Time, and Kinescope Recordings of Live Telecasts

To illustrate our general approach to the problems of determining television's effectiveness as an educational tool, we are reproducing an outline of one three-phase study in progress at Fort

Gordon, Georgia. It will be noted that the major emphasis is not upon gross mean scores comparing television with live instruction but upon specific point-by-point comparisons between the two media along several dimensions of variation—viz., nature of information tapped, training techniques employed in presentation, and type of test item employed.

Primary objectives. Phase 1: To evaluate the over-all training effectiveness of television for a 38-hour block of instruction as compared to the usual live instruction procedure. This involves also the determination of the presence of any differential decrement between TV and live instruction in training effectiveness as a function of the intensive employment of the medium.

Phase 2: To investigate the extent to which the training time of an entire week's block of instruction can be reduced through the use of television. This phase represents an extension of some of our previous research at Fort Gordon (2) in which we found that considerable reduction in training time was possible with several difficult hours of electronic instruction.

Phase 3: To evaluate the teaching effectiveness of kinescope recordings made of final "reduced" television versions.

Secondary objectives. 1. To further evaluate the effectiveness of TV in terms of kind of information which is imparted and the type of test item with which it is measured.

2. To evaluate the effectiveness of certain training aids (such as close-ups, superimposures, split-screen, bread boards, charts) and training techniques (such as concrete and symbolic visual reinforcement of the audio).

General treatment of data. We have previously emphasized the fact that sheer reliance on gross test scores can lead to serious errors in interpretations and failure to unearth significant and relevant information (10). Accordingly, the three-phase study has been so designed and the test instruments so constructed that information concerning the manipulation of specific *dimensions of variation* can be obtained. We are planning two auxiliary analytic techniques: (a) classifying test items in terms of a three-dimensional schema and conducting analyses in terms of these dimensions, and (b) performing a factor analysis upon a selected sample of test items to determine whether orthogonal factors can be derived. The first of these techniques has been successfully employed

by the authors (6, 10) and the second has been recommended in a previous paper (10).

The item-classification method consists essentially of classifying, on an *a priori* basis, all items on terms of (a) nature of information tapped, (b) formulation of the item, and (c) training techniques employed in the presentation. The following represents the comparisons that will be made:

Nature of Information Tapped	*Formulation of Item*	*Training Techniques Employed in Presentation*
A. Pure verbal information, definitions, facts, laws, etc.	A. Verbal	A. Simple audio
B. What to do information	B. Pictorial	B. Close-up
1. Manipulation of rules and mathematical symbols		C. Charts and bread boards for printed and pictorial accompaniment to audio
2. Manipulation of objects		D. Superimposure
C. Pure visual information, identification of objects		E. Split Screen
D. Interrelations of parts		F. Blackboard
1. Reading schematics		
2. Structure and functionings of equipment		

The factor analysis method consists of the following steps: (a) Using Thurstone's Centroid method (11), deriving factors from a selected sample of test items utilized in the study; (b) employing those items with high factor loadings on a particular factor as reference items to classify those items which did not appear in the original correlational matrix; (c) comparing the effectiveness of televised and regular instruction in terms of the derived factors. The factor analyses method is looked upon as a more objective technique of item analysis which will, perhaps, add new dimensions to our understanding of television and other instructional media.

Summary and Conclusions

The Signal Corps is pursuing an active program of research aimed at delineating specific areas of application of television in training, and developing techniques for more efficiently utilizing the medium. A 10-area program of research has been established at the Signal Schools at Fort Gordon, Georgia and Fort Monmouth, New Jersey. One project currently in progress at Fort Gordon is described in some detail. The availability of a varied population of subject matters and trainees at the Signal Schools in combination

with our extensive research program should produce a rich definitive picture of the role of television teaching in the Army. We expect our study results to have wide application to many of the television teaching and administrative problems encountered in the civilian use of the medium.

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MUSIC BACKGROUND IN THE JUDGMENT OF STAGE AND TELEVISION DRAMA

• PERCY H. TANNENBAUM

In this study, the "semantic differential," a technique to measure connotative meaning, has been applied to the judgment of certain factors in stage and television drama. Percy H. Tannenbaum is an assistant professor in the Institute of Communications Research at the University of Illinois.

AMONG THE various kinds of communication content, drama—both in the form of the legitimate theater and as presented through the mass media of radio, television, and motion pictures—has probably been the least studied by researchers. This is particularly true with respect to *experimental* research, involving the controlled observation of the variables involved in dramatic presentation and their respective independent and interactive effects. By far the bulk of research activity in this area belongs in the content analysis category, and even this has not been particularly extensive.

One reason for this dearth in experimental research in drama is, no doubt, the inherent difficulty in varying dramatic content for research purposes. The medium is not readily amenable to the kinds of manipulation and control that bonafide experimental research demands. Another major reason rests in the lack of adequate measures—particularly those that lend themselves to quantitative analysis—of the various kinds of effects we may expect drama to elicit. But underlying these and other less crucial barriers is a more basic obstacle—a generalized reluctance to cope with an area that is traditionally defined as "creative." From persons

engaged in dramatic presentation—the playwright, the actor, the director, the producer, and so on—there is generated a resistance to anything quantitative, to anything that may impinge on their domain of creative activity. The researcher is invariably looked upon as a poacher, as someone who should stay in his own bailiwick and tend to his quantitative knitting. In the face of such resistance, research excursions into the dramatic realm are understandably few and far between.

This paper is a report of one such rare excursion—an attempt to quantitatively index the relative effectiveness of three forms of presentation of a one-act drama, and to experimentally investigate the effects of background music in the judgment of the dramatic performance.

THE RESEARCH SETTING

That "music hath charms" is a generally accepted fact. Perhaps not so much a subject of consensus, it is also generally agreed that music can communicate meanings—at least to the extent that a particular person exposed to a particular musical composition will experience certain connotations. This may not be true for all persons or for all music, and the meanings and feeling-tones a specific musical selection will evoke in one person may or may not agree with those evoked in others exposed to the same selection. But at least they are generated in some form for some persons.

Much the same can be said for drama. It entertains, but it also conveys meanings—it has its theme and its "message," which the playwright and the actor, the director and the producer hope will "get across" to the audience. And, consciously or otherwise, a person who sees a play, or even hears it or only reads it, experiences some reaction. The effects may not be those that the author intended, but they are there nevertheless, if only in the form of some vague reaction to the performance itself.

Given at least this basic communicative function of music and a similar one for drama, an important question is posed for the situation where an appropriate—begging the question as to what "appropriate" means here—musical score is used as background to a dramatic presentation: Can the presence of such a musical score significantly influence the judgment of that drama?

Certainly when one judges by the criterion of usage, music background is considered to play a significant role in dramatic presentation. From the earliest sound film through the modern, three-dimensional extravaganza, motion pictures have made wide application of this "abstract element." Liberal use of music background is apparent also in radio drama. Current television drama appears to be following this precedent, and perhaps there is even a tendency toward increasing it. Less frequent are instances of the incorporation of music as background—as differentiated from the inclusion of music as an integral part of the drama, as in opera or musical comedy—in the legitimate theater, but even here it is a well-established tradition.

But what effects can such addition of music have? Can it enhance the drama? Can it have a restrictive effect? This has been a source of considerable speculation, but—as is the case generally with aesthetic communication—for little research. The paucity of research findings and the relative abundance of conjecture regarding the roles of music in sound film, for example, have been aptly highlighted and summarized in Zuckerman's recent review (5). Similar reviews of the literature in the areas of radio and television and the theater indicate an increased volume of speculation, but add little in the way of concrete evidence. The field, however, is abundant with tantalizing problems for experimental research—e.g., Zuckerman's classification of the various kinds of effects music may have and his implications for the possible functions of music in learning through film.

This is not to suggest that the researcher should assume the task of the artist. The composition of original music or the selection of available music for dramatic background lie within the artist's range of activity, and his freedom of selection or expression ought not to be restricted by the dictates, however well-meaning and however determined, of the researcher. The *effects* of such music once it is incorporated into the drama is, however, another matter. It is a problem of intimate concern to the communication theorist and provides a legitimate area for research.

So much for the rationale for the background music variable. The other major variable investigated in this research was that of the form of presentation of the drama—more specifically, as between a stage presentation and two kinds of television presentation. This has become an important factor for consideration with the

increasing prominence of television drama, particularly the TV presentation of plays originally written for the stage. Everyone who has been associated with both these media of dramatic presentation recognizes that there are differences between them. These differences, too, are apparent from the standpoint of the audience —if for no other reason than that in stage presentation the audience member, largely of his own volition, can select certain aspects of the performance at a given time on which to focus his attention and perception. Not so, of course, with TV. Here it is the director who exercises almost all the selectivity, and the audience member either attends or not. Moreover, in the case of TV we have a photographic medium, where the camera and related equipment—the lenses, switches, faders, and so on—becomes an artistic ingredient in its own right, and constitutes an intrinsic factor in the presentation. There are other differences, to be sure, but we will not explore them further. Suffice to say at this point that differences between the two media exist both in terms of factors inherent within each mode of expression and in the factors involved in the reception and perception of the performance. It is assumed, moreover, that these differences are reflected in the impact of the drama, per see, on the audience and how they judge and interpret it.

METHOD AND PROCEDURE

Subject matter. An original one-act play was selected as the drama for the experiment. It is a short play, lasting some 35 minutes on stage, and was originally written exclusively for stage presentation. Briefly, it involves only two characters and centers on the conflicts created in an adolescent boy as a result of his mother's ambivalent behavior toward him—on the one hand, she is apparently well-meaning and helpful, and on the other, her behavior appears to be domineering and motivated by egocentric concern. It is a rather tense, bold piece, and involves several scenes of high dramatic impact.[1]

The play was performed in two versions by the same cast, and both directed by the playwright. The *stage version* consisted of a stage presentation of the play as it was originally written. This was performed in a small auditorium in appropriate costume and utilized a specially designed set. The *TV-studio version* consisted

[1] At the request of the playwright, her name, the title of the play, and a more complete description of the plot and content are omitted here. An amateur playwright of considerable talent, she agreed to make her play available for purposes of this study and to participate actively in all phases of production work, but preferred to remain anonymous. Acknowledgment is due to her for her valuable help in conducting this experiment.

of an adaptation of the stage play for television by the playwright. It was performed before two cameras in a TV studio, making full use of the usual television techniques such as the close-up and superimposed images. An attempt was made to keep the performance as similar as possible to that of the stage version—the audio portions were almost identical, the same general set was used, and so on.

For purposes of the experiment, a third version was added. This consisted of a one-camera television recording of the stage version of the play made at the same time this latter was being staged. The camera was placed in the center aisle of the auditorium, and used a single wide-angle lens focused on the stage throughout the performance. The audio portion was recorded from a single on-stage microphone. This will be referred to as the *TV-theater version.*

Design. Three separate groups of subjects (undergraduate students) were respectively exposed to the three versions of the play. One group watched the stage version of the play in the auditorium; a second group saw a kinescopic recording of the TV-studio version, and the third group was exposed to a kiniscopic recording of the TV-studio version. Kinescope quality was adequate in both cases.

Three additional groups were then exposed to the same three versions of the play, except for one important modification: This time, a continuous musical score,[2] especially selected for the drama, was included in the background.

Thus, six groups (N = 20 for each group) of subjects entered into the experimental design, as indicated in Table 1 (the Roman numerals identify the groups). This was also the basic design for

TABLE 1—THE EXPERIMENTAL DESIGN

Type of Background	Form of Presentation		
	Stage Version	*TV-Studio Version*	*TV-Theater Version*
Without Music	I	II	III
With Music	IV	V	VI

[2] This musical score was selected by a person who has had considerable experience in this kind of work, and was judged as being appropriate to the present drama by a panel of four experts. It was a combination of the work of several composers, and was played at a more-or-less constant volume except for certain scenes where the volume was raised for dramatic impact—the same scenes in each version. In each case, the music was fed into the performance via a hidden turntable. For the stage version, the turntable was located offstage and the music was transmitted via two hidden amplifiers. For the two TV versions, the music was fed into the loudspeaker system which carried the regular audio portion of the recording.

analysis of the data, and allowed for the ferreting out of the effect of the music background, of the three versions, and of any interaction between these variables.

Measuring instrument. Subjects in each group were exposed to their respective versions, with or without musical background, and were then asked to rate the play on a form of the *semantic differential*, a technique developed by Osgood as a measure of connotative meaning (1, 4). The semantic differential is a combination of association and scaling procedures. A subject is asked to rate a concept or object against a series of bipolar, seven-interval scales, the poles being defined by adjectival opposities. For example, the concept *Abstract Art* may be judged against the scale

pleasant —:——:——:——:——:——:— unpleasant.

A series of such scales is assumed to be representative of a set of factors which can be used to define a multidimensional semantic space within which the meaning of a concept may be specified. In the factor analysis work conducted to date, three basic factors or dimensions of meaning have repeatedly exhibited themselves (2, 4). The first factor that invariably appears is clearly identifiable as a general *evaluative* factor and is characterized by such scales as *good-bad, fair-unfair, valuable-worthless,* and the like. This dimension has recently been shown to be closely similar with the basic attitudinal continuum, as it is indexed by other standard attitude-measurement techniques (3). The other dimensions isolated are identified as a *potency* factor (e.g., *strong-weak, large-small,* etc.) and an *activity* factor (e.g., *fast-slow, active-passive,* etc.).

For the present study, 10 such scales were selected—four from the evaluative factor, and three each from the remaining two factors. To obtain separate factor scores, the ratings were summed *within* each factor. For example, an evaluative score was obtained by summing the ratings over the four evaluative scales only. By assigning the unfavorable end of an evaluative scale a score of 1, and the favorable end a score of 7, the possible range in evaluative scores was from 4 (most unfavorable) through 16 (neutral) to 28 (most favorable). Similarly, the range in potency scores was from 3 (least powerful) to 21 (most powerful), and that on activity score from 3 (least active) to 21 (most active). In this manner, three separate factor scores, one representative of each dimension, were determined for each subject in their judgments of the play.

RESULTS

The experimental design employed suggested the use of analysis of variance in treating the data. A separate analysis was conducted for each set of factor scores, with the following findings.

Evaluation.[3] On this dimension, essentially an index of attitude, the form of presentation variable proved to be a highly significant one, but the effect of music background was negligible. Subjecting the data for the three different versions to closer scrutiny, we find that the most favorable judgment of the play was by the TV-studio group, followed closely by the stage version group. The difference between these two groups is not statistically significant, but both are significantly more favorable than the TV-theater version, which fared quite poorly. When comparing between the absence and presence of music background, we find a slight decrease in evaluation when the music is added to the stage version, but some increase on the other two versions. In no case is the difference at all significant, but the fact that one decreases and the others increase contribute to the moderate, but statistically insignificant, interaction obtained.

Potency.[4] On this dimension, both the form of presentation and the music background variable are significant beyond the conventionally adopted levels, with the interaction between them being negligible. The addition of music background exercises a significant effect on the judgment of the potency of the play, making the play appear much stronger in each of the three versions. Analyzing the form of presentation data, we find, as with the evaluation scores, the TV-studio group to judge the play the highest (i.e., most powerful), with the TV-theater version being the least powerful, and the stage version occupying a half-way position. Here, however, the difference between the

[3] For reference, here is the analysis of variance table:

Source of Variance	*df*	*Mean Square*	*F*
Between Presentations	2	293.87	5.66*
Between Backgrounds	1	13.01	.25
Interaction	2	59.80	1.15
Within Cells	114	51.91	
Total	119		

*p .01

[4] The analysis of variance breakdown here is:

Source of Variance	*df*	*Mean Square*	*F*
Between Presentations	2	87.11	5.12*
Between Backgrounds	1	76.53	4.50**
Interaction	2	11.25	.66
Within Cells	114	17.02	
Total	119		

*p .01
**p .05

TV-studio and the stage versions is statistically significant, but not that between the stage version and the TV-theater version.

Activity.[5] On the activity dimension, only the music background proves to be statistically significant. Both the form of presentation and the interaction fall considerably short of the 5 percent level of acceptability. Here again, the incorporation of background music causes the play to be judged more active than without music. This effect, moreover, is evident for each of the three versions, but is most pronounced for the TV-theater version and least for the stage version. It is this discrepancy in extent of effect that accounts for the moderate, but again insignificant, interaction. Comparing the three versions, we find the stage version judged to be the most active, followed by the TV-studio version, with the TV-theater version being the least active of the three. In none of the three comparisons, however, are the differences statistically significant.

DISCUSSION

These findings testify to the significance of both major variables in the judgment of the drama. Considering first the effects of the addition of background music, it is apparent that while the evaluation of the play, whether the audience liked it or disliked it, was not significantly influenced, judgment as to its "strength" and level of activity was effected. Music—more specifically, this particular selection of music—made the play appear somewhat stronger and more active. This effect, further, was a generalized one—it was in the same direction no matter which form of presentation was employed. Music background, then, can be considered to have an influence on the rating of the drama, with this influence being most pronounced on the connotative dimensions of potency and activity, but not to a significant degree in terms of changing the evaluation of the play. There may, of course, be other ways in which the presence of music background can operate on the judgment of the drama, but these were not investigated in the present research.

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[5] The analysis of variance table here is:

Source of Variance	*df*	*Mean Square*	*F*
Between Presentations	2	31.03	1.88
Between Backgrounds	1	110.21	6.69*
Interaction	2	22.58	1.37
Within Cells	114	16.46	
Total	119		

*p .01

Consider next the effects of the form of presentation of the drama. Here we find the TV-studio version to be the most superior generally. Judgments of the drama by persons exposed to this version were the most favorable, by far the most potent, and a close second on the activity dimension. The original stage version did not rank far behind. It was not significantly different from the TV-studio version on evaluation, but was significantly less powerful; on the activity factor it ranked slightly ahead. On an over-all basis, then, there was not too much to choose between these two versions.

The TV-theater version presents a more consistently unfavorable picture. It was the least favorable of the three forms of presentation, the least active and the least potent, although not significantly so on the last criterion. This version was included in the experiment to obtain some index of the desirability of such TV dramatic production. Certainly it is a relatively inexpensive way to stage TV drama. But from the results of the present experiment at least, we cannot recommend it. In this form of presentation, the TV camera merely *reports*; it is a sort of "middle-man" that picks up what is on stage and transfers it on to its viewers. While such a function is of prime importance in news coverage and the like, it is not a successful medium for dramatic presentation—at least not as successful as the other two investigated in this study. As a reporter, it possesses none of the attributes inherent in the television medium that can enhance dramatic presentation. And it appears to create a remoteness from the stage version it reflects, so that the dramatic impact is subdued in the process.

One must caution, of course, that such findings would not necessarily hold for *all* kinds of dramas, or for all plays within a particular class. We can only talk about the particular play used here, and any attempt at generalization is extremely tenuous. It may be, for example, that the TV-theater form of presentation would be as favorable as the stage version in the case of musical comedy or opera. I recently had an opportunity to view a sort of modified TV-theater version of an operetta produced under Canadian Broadcasting Corporation auspices, and although I have never seen the original stage version, it was a profound performance in its own right. The results of the present study, then, provide little basis for wholesale rejection of this form of TV drama production.

This caution, too, must be applied to the other findings of the experiment. There is no guarantee that every TV adaptation of a

stage play will be judged as well as the original or better—certainly some recent attempts at this on network shows prove this point adequately! Nor can we say that all music, or even that all "appropriate" background music, can enhance the judgment of the drama, as it did in the present study. All we can reliably say on the basis of the present findings is that such musical background *can* have substantial effects and possibly we can describe those effects to some extent.

This study has also demonstrated another point—that experimental research in drama is possible and that it can be used to test "hunches" and "rules-of-thumb" that are so prevalent in this area. Most often, these are products of great insight and ingenious intuition—they are what add so much of the novel and the exciting to the dramatic area. But their validity may be questioned, as it often is, and research can be used to test this validity. The present experiment, for example, did not arise from the clear blue. Several people who were acquainted with the play had expressed the belief that appropriate music would enhance its performance; several others were interested in seeing how well a TV adaptation would fare, and how a straight TV report of the stage presentation would rank with the others. We all had feelings on these issues, one way or the other. Until the actual experiment was conducted and the results analyzed we could not determine which of these intuitions was correct.

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CONTENT ANALYSIS IN A V COMMUNICATION RESEARCH

• DONALD AUSTER

The quantitative analysis of the content of instructional materials has been virtually neglected. Here some useful applications of the technique are made to audio-visual communication research. Donald Auster is an instructor in the Audio-Visual Center at Indiana University.

ALTHOUGH content occupies a significant place in the communications process, the objective, systematic analysis of the content of various audio-visual materials has been largely neglected.[1] Despite the existence of thousands of educational films, little if any research has been done which can provide us with summary statements or empirically verified generalizations about either the past or present characteristics and trends in the content of these films. The full impact of this neglect appears more regrettable when it is realized that a technique ideally suited for just this purpose has been effectively employed by various students of communication media for some 35 years. The technique is known as content analysis.

This article will (a) define and describe content analysis, (b) suggest some applications of this method to audio-visual education and finally (c) provide an extensive bibliography of the literature on content analysis.

DEFINING AND DESCRIBING CONTENT ANALYSIS

Quantitative content analysis, and we shall exclude from this discussion the qualitative analysis of communication content, is a scientific method for describing the facets of communication in such a way that summary statements and generalizations can be made about content. Its basic characteristics readily distinguish

[1] In addition to the general absence of such studies from the published educational research literature, the author has recently examined the titles and summaries of several hundred doctoral dissertations in audio-visual education and found only three that employed quantitative content analysis.

it from review and the evaluation of communication content. Content analysis is objective, systematic, and quantitative. Neither the review nor the evaluation fulfills these criteria in the sense that they are used here. Nor would one expect them to.

The criterion of objectivity requires that the categories used in classifying the content must be such that any person familiar and competent in the method of content analysis could apply the classification system to the same content and secure essentially the same results as the original investigator. Additionally, it should be possible for the same researcher to return to the material long after he has forgotten it and, by paying heed to the coding instructions, repeat his previous results.

The requirement of system, as Berelson [2] has pointed out, has two meanings. One meaning is that all content pertinent to the problem at hand is analyzed. In other words, once a sample of content has been selected one cannot discretely select only those segments of the sample which conform to his assumptions. The second meaning of system is that the analysis must be designed in such a way as to test some scientific problem or hypothesis. While what is considered a scientific problem may vary widely in both scope and sophistication in different fields, however, there should at least be some hypothesis, assumption, or even hunch guiding and delimiting the research.

The criterion of quantification requires that the material analyzed be treated in terms of numerical frequencies. The details for carrying out the technical operations of content analysis are admirably summarized in Berelson.[3]

CONTENT ANALYSIS IN AUDIO-VISUAL RESEARCH

Since its advent in the 1920's, several hundred content analyses have been reported in the research literature. As a method it has been applied in exposing propaganda techniques, measuring the readability of instructional film narrations, analyzing the content of comic strips, and determining characteristics and trends in the content of commercial television to mention but a few.

However, scant use has been made of this method in audio-visual communication research. While the effects of audio-visual materials, particularly the educational film, have been subjected to thorough and systematic investigation, the stimuli which create the

[2] Berelson, Bernard. *Content Analysis in Communication Research.* Glencoe, Illinois: The Free Press, 1952. p. 17.
[3] *Ibid.*, p. 135-95.

effect—the film content itself—have not been submitted to this same careful scrutiny. Although content analysts have told us a great deal about commercial movies, radio, television, comics, newspapers, and even school textbooks,[4] little is known on a scientific basis about the educational film. To be sure, many of us are familiar with the content characteristics of a great many educational films, but this knowledge exists primarily as vague information or in the confined depths of the personal experience of those few who have had unique opportunities to carefully select and evaluate films throughout the years. Consequently, this information does not exist in empirically verified, readily summarized, and easily communicated form. Thus, it appears that our knowledge could be profitably improved and supplemented by the increased use of the procedures of content analysis.

And now to suggest some of the ways in which content analysis might be applied to audio-visual materials, particularly the film.

1. *To Describe Trends in Educational Film Content.* The desirability of comprehending the current content of educational films and of predicting future developments strongly suggests the need for trend analyses. The studies could provide the valuable historical perspective against which present content can be better understood and future trends more accurately foreseen. Systematic analysis of the frequency of films in various subject-matter areas over the years would indicate what subjects are being given more attention, what subjects are being treated less and which have not been tapped at all. If such findings were equated against some criteria of societal and educational needs and interests, it would provide a guidepost to the types of films that should be produced. Incidentally, the fact that without such information educational films are rendering important service does not preclude the possibility that with more accurate information even more useful films can be produced.

2. *To Describe the Content Characteristics of Educational Films.* Not only should we know the extent to which various subject-matter areas are covered by instructional films, but we must also discover the nature of the treatment within specific areas. It is conceivable, for example, that within a five-year period a dozen films are produced dealing with the problem of

[4] For example: Blythe, Irene T. "The Textbooks and The New Discoveries, Emphases and Viewpoints in American History." *Historical Outlook* 23:395-402; 1932. Estensen, E. V. "McGuffey—A Statistical Analysis." *Journal of Educational Research* 39:445-57; 1946.

delinquency and problem behavior. However, it may be important to determine if these films give expression to the current alternative explanations and remedies rather than restricting themselves to one point of view. This is especially important in areas of possible diversity or controversy where there is the possibility of the current fad or popular view acquiring a completely dominant position on the educational screen.

Systematic content analysis could tell us to what extent the various legitimate, alternative ways of viewing the subject are available on film. It can be pointed out, for example, that even so fine a film as *The Quiet One* utilizes and emphasizes just one of the several possible explanations of antisocial or delinquent behavior. The film's thesis seems to be that lack of love and affection leads to frustration which results in aggressive, antisocial behavior. Are we to imply that every similar act is merely a manifestation of the same cause? Certainly not. Our point is not to suggest that any one film must cover all points of view or that the thesis of this particular film is in error but merely to illustrate the manner in which content analysis in a particular area could reveal how thoroughly that area is represented by the available films.

In training films particularly, it is important to set up definite criteria as to what the subject matter shall comprise and then measure the film content against this standard. For example, in teacher-training films are all the major problems of teachers represented in the content of the available films? Are any important teacher problems frequently neglected? Is it possible that some of the more difficult and unpleasant aspects of discipline maintenance are glossed over or treated unrealistically. As a result, are we neglecting teachers needs? Questions such as these may be answered by empirical research involving testing an hypothesis that teacher-training films are so oriented toward recruiting students to become teachers that they neglect realistic training in how to be effective teachers.

3. *To Further Understanding of the Effect of Films on Behavior.* One of the most important problems in film research concerns how well films meet their objectives; how efficiently films facilitate learning and create or alter attitudes. As mentioned previously, refined analyses are performed to measure the effectiveness of films. Considerably less effort is spent determining objectively if the film actually does contain the elements necessary for

meeting this objective. This problem entails knowledge of how specific film components affect behavior. We need to be able to make empirically grounded generalizations about whole types of film components. By utilizing the method of content analysis it is possible to make the kind of detailed analysis of the film content which will permit a more thorough understanding of the relationship between film variables and film effects.

4. *To Analyze the Film Production Process.* Just as various changes occur when a book is transformed into a film, so changes take place between the original idea for an educational film and the completed version. While this is generally self-evident we need a careful study of the entire film production process in order to indicate what changes occur and at what points. Precisely what changes take place between the original idea, the first scripting and its subsequent revisions, the shooting of the film, the editing, and finally the finished print. What effect has this process had on the original objectives and conceived content of the film? It is likely that changes may occur as the result of technical requirements, revisions of time schedules, compromises among producers and educational authors and consultants, budgetary problems, and such things. Some of these changes and the cumulative effect of all of them on the content may frequently escape notice of the producers. A content analysis at various strategic points along the film production process would bring out in the open some of the possible effects of the film production process itself on the intended content.

5. *To Measure the "Readability" of Educational Films.* Readability measures can be applied to the printed material and the narrations which accompany films provided one bears in mind that the net impact on the audience is not the result of an atomistic perception of the pictorial or spoken or printed components but occurs in the form of a Gestalt of the entire stimulus. Recently both Allen[5] and Moldstad[6] have been engaged in the study of content in their separate researches on the differential effect of film narration on learning.

CONCLUSION

We have briefly attempted to delineate the field of content analysis of communication media and point out the value of

[5] Allen, William H. "Readability of Instructional Film Commentary." *Journal of Applied Psychology* 36:164-68; 1952.
[6] Moldstad, John A. "Readability Formulas and Film Grade-Placement." *Audio-Visual Communication Review* 3:99-108; 1955.

content analysis as a method of audio-visual research. On the following pages is a bibliography of that part of the literature on content analysis which seems most useful for audio-visual researchers. While the bibliography is fairly comprehensive it does tend to omit studies dealing with the analysis of printed material.

It is hoped that one of the future trends in audio-visual communications research will be an increase in content analysis, both as a method and an area of research activity.

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PLANNING FILMS THAT TEACH

• RALPH R. WHITE

Here a long-time writer of educational films and television programs presents some thoughtful ideas on the design of instructional films for specific audiences. Ralph R. White is a scenario writer with the Army Pictorial Center.

"WHAT IS this film intended to do to whom?" This is one of the first questions I ask of a film client. Generally, this inquiry catches him by surprise, and his faltering reply is likely to be evasive, "We want it to tell all there is to tell about the subject. . . ." I listen and take notes on the proposed teaching matter of the film—and after a tactful interval, I return to my opening question: "*What* is the film intended to *do* to *whom*?"

Many people seem to assume that training films are written, directed, photographed, and edited merely to cover the subject matter. In point of fact, if a film writer had nothing to be concerned about except teaching doctrine and the appropriate use of equipment for photographing such doctrine, his task would be a comparatively simple one. There is a vitally important third factor that demands equal consideration—the factor of the film's *target audience.*

To prepare a satisfactory scenario, careful thought must be given to the exact nature and needs of this audience. The subject matter must be restricted to information that this audience can be interested in and has need to be informed about. And it must be offered in a manner that is appropriate to this audience.

DEFINING THE SCOPE AND PURPOSE

Let's consider a simple film on how to perform a series of mechanical procedures. A critical evaluation of the proposed subject matter may disclose that much of the mechanical process is readily

understood and correctly performed and that there are just three or four steps of procedure where all misunderstandings generally center. Obviously, the *what* of this training film is not the total of its proposed subject matter. If it is to be produced for maximum teaching effectiveness at minimum cost, it must center on the three or four points that constitute the actual training problem. In this instance, the appropriate scope of the film's doctrine becomes considerably decreased from that of the original film plan. But in other instances the scope may be substantially increased.

Some years ago, I was assigned to plan a training film on the subject of occupational therapy in the treatment of acute psychotics. The client's original plan had indicated a film to instruct occupational therapists on attitudes and techniques for dealing with acute psychotics in mental hospitals. But when I began the actual task of writing the scenario, I found that this was by no means all that the film could and should try to accomplish. It was also expected to realistically document the symptomatology of the simple schizophrenic, the catatonic, the hebephrenic, the maniac, the depressive, and the paranoid. Another major purpose was to try to inspire young women to undertake careers in occupational therapy and to convince them that working in a mental hospital could be a rewarding type of social service. A very important purpose was to attempt to convince psychiatrists that occupational therapy should be diagnostically prescribed. And still another purpose was to "document" an ideal program of occupational therapy in a mental hospital so as to provide an operating blueprint of how such a program could function with proper facilities and an adequate staff. Here, the target audience was to include administrators, legislators, and boards of trustees. This seems like a wide assortment of purposes and audiences (and there were others), but the completed film answered all of these requirements with a high degree of success. Its one shortcoming was that it did not extend itself further and give more attention to the precipitating causes of the six classifications of mental illness that it considered.

For another example of scope and purpose, take the planning of a safety education film for the prevention of auto accidents. With such a film, it would be presumptuous just to photograph a representative assortment of accidents and to assert that if drivers would be more careful such things wouldn't happen. What is pictured and said and how it is pictured and said should be deter-

mined by the target audience. Will the film be screened mostly in public schools? In men's civic clubs? In women's clubs? Should it be tailored to fit the time schedule of a TV program? Should the film be slanted at selected portions of its audiences? Are there certain personality types who are more prone to have accidents than others? Are there certain age groups that are accident prone? Are accidents likely to be precipitated by a mental-emotional condition that makes a driver accident prone? Is it practical to attempt to teach a driver how to recognize such a state of mind and take appropriate safeguards? And how much can people be changed by merely subjecting them to a half-hour movie or TV program?

I am acquainted with two excellent safety education films whose writers spent a number of weeks considering these questions and 100 other comparable ones before they sat down at their typewriters and tapped out "Scene 1." The resultant films didn't just take up subjects—they took up audiences as well. And they actually *did something* to their audiences!

HOLDING AUDIENCE INTEREST

The production of a motion picture is an expensive undertaking. Its cost can hardly be justified if the audience is confused or bored. To be able to stimulate and retain the interest of an audience, the film writer must understand what the people in this audience will be like. Will they be young or old? Will they be men or women? Will they be students enrolled in regular classes? How much formal education will most of the audience have experienced? What will be the social and economic level of the audience? Will its members be likely to have fixed attitudes and prejudices about the subject matter and the style in which it is presented? Under what circumstances will the audience view the film? When viewers see it will they be physically comfortable? Relaxed? Tired? Wide awake and alert? Will they be attending the screening willingly and purposefully? A film is *about a subject*, but it must be *addressed to people* who must be kept *interested*.

Though a poor film scenario may be rescued by superior direction and editing, the first factor in influencing interest will be the suitability of the type of treatment that the writer decides upon.

There are dozens of alternative interpretations for training film doctrine. Should the film have a plot? How much plot? What kind of characters? Should it be a narration type film? Should the

narrator be seen? Should the narrator be male or female? Should the film include animation? Should it include special-effects substitutes for animation? Should it include models or puppets? Should it include a panel discussion? Should teaching doctrine be incorporated in songs? The list of possible audio-visual techniques is a long one.

The matter of narration style may be an important interest factor. For example, in writing and evaluating training films for the U. S. Armed Forces, it has been my observation that some service men resent films in which a narrator speaks precisely correct English. There is, of course, a marked difference between correct written English and realistic spoken English—and when narration is grammatically exact, some listeners find it prissy and insincere. To the extent that they resent *the way* things are said they may be likely to ignore *what* is said. With other audiences, grammatical style may be less important. In the case of professional medical films, for example, most doctors don't seem to be annoyed by exactly correct English. But they may well be antagonized by a narration style that bluntly affirms that a professional procedure is correct or incorrect. Doctors are more likely to give an educational film their sympathetic attention when they are subtly led to draw their own conclusions.

THE ENVIRONMENTAL FACTOR IN AUDIENCE RAPPORT

Possibly because educational films are often screened for large audiences, films are likely to be employed not as supplementary training aids but as complete lesson units. It is not uncommon for screenings to be held in rooms where students have been accustomed to view entertainment, a factor that may influence their mental attitudes as viewers. And when films are projected in ordinary classrooms, the need for blocking off windows may result in poor ventilation. Even under ideal viewing conditions, darkness is conditioning to sleep. And no matter whether the showing takes place in an auditorium or a class room, the inattention of individual students will generally pass unobserved.

All this adds up to the reality that when an educational film is shown, students are precipitated into a situation which may not be conducive to learning—and the instructor hands over the class to a reel of cellulose acetate. Under such circumstances, if the film is just an exposition of subject matter without skillfully employed

dramatic and psychological techniques for arresting and retaining interest, it can not accomplish much.

In traditional classes in fully lighted rooms, teachers can watch the faces of students and adapt their voices, their actions and their lesson plans to counteract any drop in interest. The training film counterpart of the live teacher must be planned to maintain a stimulating rapport with hundreds of thousands of unseen students. That is why so much attention must be given to film techniques for arresting and retaining interest.

THE OSMOSIS THEORY OF LEARNING

One popular formula for the organization of an educational film is, "Tell 'em what you're going to tell 'em. Tell 'em. And then tell 'em what you've told 'em."

Aside from the comparative length of its three parts, this formula is not unlike that for a newspaper story where the first paragraph capsules the news item, the next two or three paragraphs recount it more fully, and the remaining paragraphs ramble on to repeat it for a third time. In addition to being convenient for newspaper layout editors, this style of communication is especially well suited to bus riders. When a passenger comes to his stop, he can stuff his newspaper into his pocket and go on his way without having to wonder about the end of the story. But such a triple repetition of information is a dubious technique for sustaining attention with a communications media in which audiences are accustomed to having their interests whetted by suspenseful mixtures of plot, music, and sound effects. In planning an educational film, a writer must remember that there are myriads of mental bus stops that offer themselves to a drowsy man in a dark room.

"How do people learn from watching films?" I recently asked this question of a well-known authority in the field of audio-visual education, and he answered that he leaned toward what he chose to call *the osmosis theory of learning*: that if a student is subjected to a fund of information for a long enough time, some of it will "soak-in" by a process somewhat like the physical process of osmosis. In the opinion of this audio-visual "expert," all an educational film needed to do was to present a message in a simple, straightforward manner and to repeat the substance of it at least three times.

The trouble with the osmosis theory of learning and its sister cliché about "tell 'em what you told 'em," is that educational films so formulated are likely to have a sedative effect on their audiences —particularly on the marginal students who may have the greatest need to have their interests enlivened. The brightest and most eager students may pay attention to a film regardless of how its teaching matter is organized. And if they don't get the information from the film, they will probably get it some other way. But the marginal students, the half-interested students, the bored and easily distracted students will not learn unless they are reached and held by the film. The multiple repetition of information to people who are paying little if any attention is a waste of time and a waste of film production money. In many cases it may be more effective if the film shows or says something only once—or possibly twice—but drives home the point with such interest-arresting effectiveness that it will be readily recalled *after* the screening is over.

LETTING THE PICTURE TELL THE STORY

One of the ABC's of effective film writing is to make the picture tell the story and make the teaching points. Generally speaking, a film that is no more than an illustrated lecture is a second rate product of careless and unimaginative planning. A great many such amateurish films have been produced. And in the poorest of them, a narrator's voice may talk about things that aren't even being shown on the screen. Film editors refer to this practice as "fighting the picture with the narration." Generally the picture wins out in such a fight. And the two losers are the voice of the narrator and the interest of the audience. The film writer should strive to offer a smooth, natural sequence of pictures that gets its message across in an interesting, intelligible manner *even without the sound track.* The picture should not merely illustrate a lecture. Rather, the spoken word, the sound effects, and the music should *reinforce a pictorial communication that can stand alone.*

PROBLEM, STRUGGLE, AND RESOLUTION

Another fundamental of film construction is the desirability for presenting subject matter in the classic progression of *problem, struggle,* and *resolution.* Almost any educational subject can be at least partly organized on such a ladder of interest. If teaching material is incorporated into a dramatized plot, such an organiza-

tion is inherent because the progression of problem, struggle, and resolution is the basis of all plots. Though its three elements may be less obvious, this progression is also the standard structure for documentary films. In documentaries, the *problem* is a social or economic problem, the *struggle* is the efforts of a social group or governmental agency to do something about this problem, and the *resolution* is the indicated or realized success or failure of these efforts.

Educational films do not have to be provided with dramatized plots or documentary structures to take advantage of the interest-arresting progression of problem, struggle, and resolution. Whatever the instructional matter, it usually can be broken down into a series of subdivisions in which something is desirable for a reason that can be expressed as a *problem*. Doing something about this problem is the equivalent of the *struggle*. And the result is the equivalent of the *resolution*. Almost without exception, when information is presented in this order it has the greater likelihood of retaining audience interest. And when the order is altered, usually the media of communication does not realize its potential for arresting interest. To start with generalized conclusions and then go on to expound them is like telling a joke and giving the "punch line" first—or like beginning a detective story by turning to the last page. Interest is best retained by posing a series of problems and solving them one at a time.

INTEREST THROUGH AUDIENCE IDENTIFICATION

Anyone who has ever listened to children at the start of a favorite TV program will have heard talk like this: "I'm Roy Rogers! No, you're not; I'm being Roy! Let's both of us be Roy! And she can be Dale Evans, and he can be Pat Brady, and she can be Trigger!"

Whether they are young or old, viewers vicariously undertake the solution of problems by identifying themselves with screen characters who are confronted with these problems. This is true whether films are entertainment films or teaching films. *People are interested in people like themselves,* and problems become most interesting when they are experienced as their own problems.

Let's consider how an educational film writer goes about organizing teaching doctrine into a format of problem, struggle, and

resolution reinforced by self-identification. Once I was asked to write some Army sanitation films to encourage soldiers to improvise practical sanitary devices: schemes for getting safe drinking water, building homemade washing machines, disposing of garbage, and such things. For audience interest and self-identification it was decided that a *person* (soldier) should be confronted with a series of sanitary *problems*. With ingenuity and imagination, the soldier should *struggle* to find appropriate *resolutions* for these *problems*. Because the scope of the teaching doctrine made for rather long films, interest was further heightened by introducing comic cartoons and contrasting the successful efforts of the "hero" soldier with the ineffectual efforts of a "goof" soldier who was ridiculed for doing things the wrong way.

ANTAGONIZING AN AUDIENCE

Watching pictures that talk and move is no longer a novelty, and audiences give educational movies and TV shows the same critical reception they give to entertainment programs. If there are aspects of a presentation that annoy the audience, teaching effectiveness suffers accordingly. And there are as many ways for inadvertently annoying an audience as there are techniques for holding interest.

One common objectionable practice is to start off an undramatic, lecture-type film with a colorful opening that hints at a plotted story line. Though the bulk of the film may be a competent presentation, it may needlessly lose some of its audience. When viewers discover that a film or TV program has been insincere, it is easy to even up the score by refusing to pay any further attention. An introduction should be honest. It should not try to deceive its audience by hinting at things that aren't going to happen.

Audiences can be antagonized by factors that may seem too trifling to be worthy of serious consideration. For instance, when U. S. Army training films have been adapted for allied armies, foreign trainees have been irritated and distracted by scenes that have shown American soldiers tossing away half-smoked cigarettes. In countries where "tailored" cigarettes are a luxury, a training film's effectiveness is imparied if such scenes are not deleted. It is just as easy for a hastily conceived film to tread on the toes of segments of American audiences.

THE VOLUNTARY EXPERIENCE OF LEARNING

Finally, the educational film writer must bear in mind that anything that helps to make the viewing of the film a satisfying experience will increase its teaching effectiveness. And anything that tends to make it an unpleasant experience will be likely to detract from its effectiveness. However much we may wish that a film could teach by simply telling an audience, "This is important—remember it—do it!" such an approach is likely to get unsatisfactory results. Films and teachers can only stimulate and guide the learning process. Learning is a voluntary experience that demands a willing and wilful effort on the part of the learner. In contrast, forgetting is an involuntary experience. Things that bore or annoy us tend to be forgotten even though we may make some effort to keep this from happening. The eroding process of amnesia not only erases dull and unpleasant memories, it may even wipe out recall of everything associated with such "learning" experiences. In the final analysis, the most important criterion of the worth of a training film may be the simple question: "Did the audience like it?"

TRADITIONS OF MEDIOCRITY

The same qualities that bring interest to entertainment films and inspire confidence in TV commentators make for interest and confidence in educational productions. The inclusion of the world "educational" in the title of a film or TV program is no assurance that audiences will accord it special tolerance and appreciation. Bad writing and shabby production carry the implication that the film isn't a particularly reliable authority and that the subject matter isn't important enough to be worth presenting well.

Most educational films have not been planned to take full advantage of their potential effectiveness. And this is understandable. Visual education has never been a highly paid or highly respected profession; the most competent film people generally go into the more lucrative entertainment end of moving pictures and TV. Actually, so many educational subjects have been so poorly conceived and badly produced over such a long period of time that some undesirable treatment characteristics have begun to take on the semirespectability of tradition. An educational film writer must be analytically critical of what may have been done before and make sure that every scene of picture and every phrase of dialogue or narration justifies itself not merely as a *possible* way

to present information but as the *best* way to present its special information to its special audience.

IN CONCLUSION

The viewing of an educational film and the recall of this viewing should constitute a satisfying learning experience so that the film's message will be incorporated into a useful store of vicarious experience and remembered facts. Such learning is most likely to occur when those who write, direct, and edit a film have a clear understanding of the nature of the film's audience and of what the film is expected to do to this audience. Knowing these things and knowing the techniques of film production, it remains for the writer to present his subject matter in the most interesting and satisfying manner possible.

THERAPY BY TELEVISION

• GAITHER LEE MARTIN

• CHARLES H. R. OVER

Closed-circuit television has been found effective under a wide range of applications. This study reports on its use in the therapy of the mentally ill. Gaither Lee Martin, postgraduate student at San Jose State College (California) and professional intern at Agnews State Hospital, was the originator of and principal investigator for the research program. Charles H. R. Over, postgraduate student and professional intern, was the co-investigator. The research was conducted at Agnews State Hospital, Agnew, California, under the direction of Hyman Tucker, MD, superintendent and medical director of the hospital, and under the auspices of the Psychology Department, San Jose State College.

A METHOD of communication for purposes of sharing and transmitting information between therapist and patient has been one of several major problems in dealing effectively with the mentally ill. The paramount *why* of mental illness is at this time unknown, but the *how* of mental illness has been approached with fair success through the use of new drugs and treatments, and a greater understanding of the mentally ill person through research in the fields of psychiatry, psychology, social science, biochemistry, physiology, and other allied fields. The problems of how to deliver the therapies and treatments developed by the various disciplines to more than a few select patients; how to use the limited professional personnel prepared to deliver such therapies to the greatest number of persons; and how to carry on a broad program of treatment, education, and rehabilitation economically within the reach of all mental institutions were the subjects of several studies begun in the spring of 1952 at Agnews State Hospital, Agnew, California.

There was evidence as early as 1952, when five television sets were installed in various wards of the hospital, that patients

responded favorably to commercial television programs. In the words of Agnes Elmer, Superintendent of Nursing Services of Agnews, ". . . disturbed patients became quiet and attentive; destructive patients became absorbed in the programs instead of tearing clothing and destroying furniture." Radio sets, which had been used in the wards for a number of years, had very little effect on patient behavior; thus, the response of these patients to television caused much speculation among some of the hospital personnel. It would seem that the patients responded favorably to the visual impact of television as opposed to the "anonymous messages and disembodied voices" of radio. The patients seemed to identify with the television performers, as Ruesch (2:13) explains, ". . . communication is the matrix in which all human activities are embedded. In practice, communication links object to person and person to person; and scientifically speaking, this interrelatedness is understood best in terms of systems of communication." If the medium of television could be used to "link person to person" as in the case of mental illness—the therapist to the patient—then the problem of reaching a large number of patients with limited personnel might be solved.

A review of the literature reported no previous research in this area. Therefore, in May 1953 a pilot study was conducted which served as a first step in a long-range investigation. One ward was observed daily for a period of six weeks in order to note the patients' reactions to commercial television programs. Many patients appeared to respond with a broad range of behavior reactions: a number of patients would sit and talk to the performers, usually the newscasters, for long periods of time; some of these patients were normally uncommunicative to anyone. Other patients would imitate performers, especially dancers. Most of the patients appeared to develop preferences for certain television personalities and looked forward to seeing them each day.

It was evident from the observations made during the pilot study that more objective consideration should be given to the effects of commercial television on the mentally ill; thus, a second study (1) was undertaken in August 1953. The patients selected for this study were 67 chronically psychotic females who were confined to a closed ward and had had no access to television during their hospitalization. The behavior patterns and activity levels of the patients were observed and evaluated for a three-month period from August 8, 1953, to November 8, 1953. At this time a television

set was installed in the ward, and a second period of observation and evaluation was conducted for a three-month period from November 8, 1953, to February 8, 1954.

It was concluded from this study that there was an over-all average behavior improvement of 9.32 percent for the group. These findings were based on group data obtained from the *Hospital Adjustment Scale* by rating/rerating the group prior to and following commercial television. It was further concluded that the use of television should be encouraged to relieve the tedium of institutional existence. By December 1954 television sets were installed in all 65 wards of the hospital.

The results of the two previous studies encouraged further investigation in order to determine if various types of therapy could be given to a large group of mentally ill patients using the medium of controlled closed-circuit television.

The purpose of the third and most recent study (3), which was started in August 1954, was: (a) to examine and evaluate behavorial changes occuring in patients, by means of psychological tests, prior to and following therapy by closed-circuit television; (b) to obtain clinical evaluations of the patients' condition prior to and following therapy by closed-circuit television; and (c) to evaluate the effectiveness of specific therapies presented by closed-circuit television to a mass audience.

The criteria for patient improvement were: (a) clinical estimates of improvement made by the psychiatrist following therapy with closed-circuit television, (b) psychological estimates of improvement based on tests and/or ratings made before and after therapy via television, and (c) increase in permits for definite leave, indefinite leave, and discharge.

The selection of patients for this study was under the direction of Robert Quirmbach, Medical Director of Agnews State Hospital. These subjects were 141 hospitalized females, classified, with few exceptions, as chronic schizophrenics of various types. Sixty-six of these patients were designated as the control group, and the remaining 75 patients were designated as the experimental group. These two groups were hospitalized in separate closed wards.

Psychological tests and rating scales used in the evaluation of the patients, and some of the psychological techniques employed, were under the direction of Charles W. Telford, PhD, Chairman

of the Division of Psychology of San Jose State College. The rating scales used in this study were a specially designed psychiatric evaluation scale and the *Hospital Adjustment Scale.*

Audio-visual education techniques, and audio-visual apparatus, which included a closed-circuit television chain, motion picture films, projectors, tape recorders and tapes, and other audio-visual materials, were under the supervision of Richard B. Lewis, EdD, Coordinator of Audio-Visual Services, San Jose State College.

A television studio was set up at Agnews Hospital in a visiting room approximately 9 feet by 16 feet, located off the corridor leading into the experimental ward. The furniture in the studio consisted of three library-type tables, two small tables, and 10 folding chairs. The room was lighted by one outside window and three large banks of slimline fluorescent lights.

The first closed-circuit television chain used in the study was produced by Dage Electronics Corporation of Beech Grove, Indiana, and consisted of a single camera containing control and monitor. Viewing in the ward was on a standard 21″ commercial receiver. Audio was supplied through a separate circuit. The camera was on loan to the research group for six weeks, and was replaced at the end of that time by a KAYLAB Television Camera System loaned by KAYLAB, San Diego, California. This system included a small industrial camera with a control unit and a separate monitor; this camera fed the ward receiver.

Two types of televised therapy programs were used continuously during the study: (a) panel and group discussions, and (b) selected motion pictures. Other therapies employed in conjunction with the above were: music, art, psychodrama, individual therapy, and question and answer programs, all of which were televised to the experimental group by closed-circuit television.

Two hundred and seventeen different motion pictures were televised to the experimental group, and observations were made regarding the patients' response to each film. Films were used to stimulate group and panel discussions, for entertainment, and for instruction and education. One or more films were televised before each group or panel discussion period. Art films were shown to stimulate art activities; films dealing with music and other activities pertinent to the study were also shown. Seventy-seven films were reshown from one to four times at the request of the patients.

The following procedure was employed for group or panel discussions: At 9 AM each Monday and Friday a motion picture was televised to the experimental ward. Following the picture, the therapy group (patients volunteered for all activities) would begin their discussion, which was televised to the ward. These sessions were usually attended by the ward psychiatrist and were tape recorded for later evaluation.

Six different psychodramas involving conflict situations were conducted and transmitted to the ward by closed-circuit television during the study, with eight different patients participating. The situations usually involved two patients at one time. A member of the research team would give the setting for the conflict situation and then the patients would work out their own solutions. Televised informal group discussions usually followed each psychodrama. Individual therapy, and question and answer programs, were utilized intermittently throughout the study and were televised to the ward.

Voluntary group art activities were in progress approximately three hours a day, following orientation and stimulation programs telecast from the studio earlier in the day. Art supplies consisted of water colors, brushes, crayons, and other art materials. These supplies were placed on a large table in the day hall where patients could use them at any time.

Music was supplied by more than 300 musical selections. This music was played in the experimental ward via the audio circuit, and in the exercise yard through loud speakers placed in the studio window. Music was used for dancing, singing, entertainment, and as background during therapy sessions. Music was also played for its sedative effects on treatment days, and at other times when the patients appeared to be unusually disturbed.

Patients view an art lesson televised on closed circuit while some do creative art work.

A psychodrama, acted by patients, is televised to the ward.

An interview with a patient is televised to the ward.

A group discussion is televised.

TABLE I—SIX INTERGROUP COMPARISONS OF THE MEAN GROUP SCORES ATTAINED ON THE HOSPITAL ADJUSTMENT SCALE BY THE CONTROL AND EXPERIMENTAL GROUPS

No.	Criteria for Comparison	Mean Group Score[1]	Mean Score Diff.[2]	Aver. % of Group Behavior Improvement
1.	Control ward prior to T.V.	46.92		
	versus			
	Control ward after Comm. T.V.	52.03	5.11	+ 5.1
2.	Control ward prior to T.V.	46.92		
	versus			
	Exp. ward after Comm. T.V.	53.68	6.76	+ 6.8
3.	Control ward after Comm. T.V.	52.03		
	versus			
	Exp. ward after Comm. T.V.	53.68	1.65	+ 1.7
4.	Control ward after Comm. T.V.	52.03		
	versus			
	Exp. ward after C.C.T.V.	63.11	11.08	+11.1
5.	Exp. ward after Comm. T.V.	53.68		
	versus			
	Exp. ward after C.C.T.V.	63.11	9.41	+ 9.4
6.	Control ward prior to T.V.	46.92		
	versus			
	Exp. ward after C.C.T.V.	63.11	16.19	+16.2

An analysis was made of the group data obtained from the scores of the *Hospital Adjustment Scale* for six areas of comparison for both the control and experimental groups (Table I). The first comparison revealed mean group scores of 46.9 for the control group prior to any television and 52.0 for the control group following commercial television, with a total difference between mean group scores of 5.11 indicating an average of 5.1 percent improvement in behavior pattern levels for the control group following commercial television. The second comparison showed mean group scores of 46.9 for the control group prior to any television and 53.7 for the experimental group following commercial television, with a total difference between mean group scores of 6.76 indicating an average difference of 6.8 percent of improvement in behavior pattern levels for the experimental group. The third comparison revealed mean group scores of 52.0 for the control group following television and 53.7 for the experimental group following commercial television with a total difference between mean group scores of 1.65 and indicated that the experimental

[1] The *Hospital Adjustment Scale* is scored on a 100 point scale; each of the scores in this column is a mean group percentage of the total possible score.

[2] The differences in mean scores are in reality differences in percentage of the total possible score and are carried to the next column as such.

group had a 1.7 percent higher improved behavior pattern level at the end of 20 months of commercial television than the control group following four months of commercial television. Thus, at the beginning of the closed-circuit television study the behavior pattern levels for the two groups were nearly equal. Comparison four indicates that the control group following commercial television had a mean group score of 52.0 and the experimental group following closed-circuit television had a mean group score of 63.1 with a difference between mean group scores of 11.08, indicating an 11.1 percent average group improvement in behavior pattern levels for the experimental group. On the fifth comparison the mean group scores were 53.7 for the experimental group following commercial television and 63.1 for the same group following closed-circuit television. The difference between mean group scores was 9.41 indicating a 9.4 percent average group improvement in behavior pattern levels within the group following the administration of closed-circuit television therapy. The sixth comparison was made between the experimental group following closed-circuit television therapy and the control group prior to any television. This comparison revealed mean group scores of 63.1 and 46.9 respectively, with a difference of 16.19 indicating a 16.2 percent average group improvement in behavior pattern levels following closed-circuit television therapy as compared to no television.

The *Psychiatric Evaluation Scale* was a device especially designed for use in this study which rated patients on a six-interval scale. The results of the patient's evaluations made on this scale by the ward doctor are shown in Table II. The following

TABLE II—COMPARISON OF PSYCHIATRIC EVALUATION SCORES FOR SEVENTY-FIVE SUBJECTS UNDER STUDY

Category Improvement [1]	Rate of Improvement	No. Patients	Patient's Percentage
Worse:			
Deteriorating	0	4	5.33
No change	0	8	10.67
Borderline toward slight improvement	.5	12	16.00
Slightly improved	1	18	24.00
Improved	2	19	25.33
Much improved	3 & 4	11 [2]	14.67
Markedly improved	5 & 6	3 [3]	4.00

[1] Slight improvement in one area, 1
Slight improvement in two areas or markedly improved in one, 2
Marked improvement in one area; slight in one or slight in three, 3
Marked improvement in two areas; marked in one and slight in two, 4
Marked improvement in two areas, slight in third, 5
Marked improvement in all areas, 6

[2] 8 patients rated 3; 3 patients rated 4.

[3] 2 patients rated 5; 1 patient rated 6.

results were obtained for the 75 patients in the experimental group who were receiving closed-circuit television therapy: The evaluation of four of the patients indicated their conditions had become worse; eight patients showed improvement; twelve of the patients were rated as borderline with a possible slight tendency toward improvement; eighteen patients clearly showed improvement in one area and were rated as slightly improved; nineteen patients were rated as improved; eight patients were rated as much improved; and two patients were rated as markedly improved. The areas rated by the ward doctor were socialization, amelioration of symptoms, and response to the stimulus situation. These ratings further indicated that 83 percent of the patients in the experimental group were improved to some degree following the program. Of this group 44 percent were rated as being definitely improved in the areas rated.

An analysis of the population status of the experimental and control wards was made at the termination of the program. During the period the two wards were evaluated, the following population changes occurred:

Change	*Experimental Ward*	*Control Ward*
Discharges	2	0
Transferred to open wards	3	0
Granted indefinite leave	4	1
Granted longer definite leaves	11	2
Granted yard privileges	18	4
Total population changes effected	38	7

The control ward changes took place during the four months following the addition of commercial television, and the experimental ward changes took place during the four months that the closed-circuit television therapy program was presented.

A recent follow-up investigation of the present status of the patients in the experimental group indicated that, although the program has been discontinued since March 15, 1955, those patients discharged and granted indefinite leave are still so classified. The remaining patients in the ward have not regressed, and many have continued to improve.

It is concluded from the results obtained by this study that mentally ill patients would improve significantly in behavior pat-

terns when given therapy through closed-circuit television, especially in the areas of communication, interpersonal relationships, and socialization. It was further concluded that programs of general education and instruction could be presented effectively to mentally ill patients through this medium.

As a result of the present investigation, plans have been made for further exploration in this area. The plan of investigation is to select five male and five female wards of approximately 750 patients, an average of 75 patients per ward, and designate this group the experimental subjects. Five male and five female wards will be selected as a control group. The two groups will provide approximately 1500 patients for study.

A television studio will be established in a separate building, but near the wards under study. Materials and apparatus to be used in the study will include: Two industrial television camera chains, with assorted lenses; four 21″ table model television receivers for studio monitors and staff viewing; standard 21″ commercial television receivers, provided by the hospital, will be used in the wards; one mobile equipment table for all television and audio controls, compartmented to rack all equipment; one 16 mm sound projector, synchronized for television; tape recorders; automatic slide projector; record transcription players, and other audio-visual equipment. Materials will include art supplies; recording tapes; phonograph records; motion pictures; filmstrips; cosmetics, and rating scales and testing instruments.

The tentative experimental design provides for approximately 40 hours of controlled therapy telecasts by closed-circuit television per week to the 10 experimental wards. The control wards will receive no television therapy, but will continue on routine hospital schedules.

Working in close cooperation with personnel from the different departments of the hospital, each department will be allocated approximately one month for presenting therapies pertinent to a specific discipline. Programs will be continuous between the hours of 9 AM to 12 M, and 1 PM to 6 PM daily, five days a week. Such therapies as music, motion pictures, and art activities will be an integral part of each day's program. Programs will be tape-recorded for further study and evaluation, and a motion picture photo-report will be made for evaluation and for instruction in the use of closed-circuit television with the mentally ill. The

research team will include one psychiatrist; two television therapy psychologists; and one secretary-accountant. Professional and technical consultants will be employed on a part-time basis as their services are needed.

It would appear that, in order to cope with the increasingly difficult situation of overcrowding and understaffing faced by most of our mental hospitals, some new methods for administering therapy must be instituted. Certainly the results of the preliminary studies justify further research on a larger scope. Hyman Tucker, Superintendent and Medical Director of Agnews State Hospital, in a recent speech in Sacramento stated, "The results of the preliminary study are very encouraging and the technique merits more extensive study. Television is no panacea for mental illness, but it may prove as important in therapy as some of the new drugs."

If the proposed investigation confirms the findings of the previous studies it will be possible for a psychiatrist, who can now average about six minutes a week of personal contact with a single patient, to administer therapy effectively in a simulated face-to-face situation through the medium of closed-circuit television, giving the impression of individual therapy, while administering to a large group. Further, by means of closed-circuit television motion pictures dealing with mental hygiene and other educational subjects, filmstrips, and other suitable materials can be presented as often as desirable to reinforce by repetition and consistency, the basic principles underlying good mental health. In this way large groups of mentally ill patients will have an opportunity for education, instruction, and rehabilitation made available by controlled, specially designed programs presented economically and effectively through the medium of closed-circuit television.

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WORLD COMMUNICATION

• LAWRENCE J. TATE

• HARRY L. CARR

MASS COMMUNICATIONS IN TECHNICAL COOPERATION

Two years ago a prominent Iranian at a conference with American officials reported on on inspection trip through one of the remote rural provinces. He had stopped unannounced at a village school. After addressing a few remarks to the class, he selected a boy in the audience and asked him, "What causes one to contract malaria?"

The youngster answered, "Malaria is carried by the mosquito."

"Does every mosquito carry malaria?" the official asked.

"No, sir, only the female of the anopheles mosquito carries the malaria," said the boy.

"And how can you recognize this mosquito?"

"Oh, it is the one that sits down with its rump in the air," answered the boy.

This experience convinced the Iranian official that mass communications was penetrating into the farthest corners of the country with facts and ideas that could change the destiny of its people.

The boy had learned about malaria as his village had learned about it, from a motion picture. The film was made in an Iranian

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village, with the villagers as actors, by Americans working under the United States technical cooperation program.

This film is one of 74 such educational, motivational, and how-to-do-it films made in Iran in the past five years. These films are seen by almost 3 million Iranians a year. They cover a wide range of subjects, including health, agriculture, water management, sanitation, cooperative activity, and so on.

Before U.S. technical cooperation, no one had ever made such a film in Iran for instruction of the people. Today, as a result of this program, the Iranian Government has its own educational motion picture facilities, has a corps of people trained in all aspects of producing and using films, and is carrying on a vigorous nation-wide program of audio-visual education in which films play a major role.

The technical cooperation program of the United States is primarily knowledge-sharing with underdeveloped nations. This in itself is nothing new, for American know-how has always been available to those who wanted to and could afford to make use of it. What is new is that the United States Government has undertaken to sponsor this knowledge-sharing program as a part of its foreign policy, so that the relatively high cost of American technicians, demonstration equipment, and materials need not deprive even the poorest country of using them for their own national development.

Technical cooperation, then, is largely a job of introducing new methods and ideas and propagating them. In one sense, it is a teaching job. The "teachers" are some 3000 Americans employed directly or under contract by the International Cooperation Administration serving in some 60 countries, working closely with a somewhat larger number of "counterpart" technicians assigned by their own governments. This teaching staff includes health advisors, educators, agriculturists, engineers, sanitarians, soil experts, malariologists, well-drillers, community development advisors, public administration specialists, and experts in many other fields.

The pupils—those to be taught—number more than 900 million. If the sheer size of the teaching problem were not enough, it is further aggravated by high rates of illiteracy, complexity of languages, lack of informational media, inadequate government services, and the vast differences in social, cultural, and religious backgrounds of the people.

It is obviously impossible for 3000 teachers—or even 30,000—to give effective instruction to 900 million persons.

In actual practice, they are not attempting to do so directly. They are helping first to improve institutions, governmental services, agencies, and organizations for extending information and assistance to the people. They are at the same time teaching teachers, or training trainers—sometimes merely by working with one or more counterparts who learn by working with American technicians on the job, sometimes by organized training programs, both large and small. And finally, they are developing mass communications and extension techniques which can multiply the numbers of people reached, reach them quicker, and instruct or persuade them more effectively.

This article deals only with that part of the technical cooperation program that is concerned with methods, media, and materials for mass communication.

Organizing for Audio-Visual Communications

Late in 1951, what is now ICA established an audio-visual service for its overseas operations. The initial goal was coordinating the development, procurement, distribution, and utilization of audio-visual materials in direct support of the subject-matter specialists serving abroad in various fields. Mainly, this meant selecting and evaluating existing U.S.-produced materials for possible use overseas. These were shipped abroad in full knowledge that they were not entirely adequate for the specialized needs of technicians in different countries, but would have to do until locally produced materials could become available.

Simultaneously, work began to provide each USOM (United States Operations Mission) with an audio-visual advisor whose first task was to develop a coordinated audio-visual program to support the American technicians working in the country. Today ICA has audio-visual programs in 29 countries. The size and scope of these field operations vary widely. For example, the audio-visual section in USOM Afghanistan consists of one American and a few Afghan assistants. In India the Audio-Visual Division is composed of four Americans and a large staff of Indian artists, cameramen, librarians, projectionists, and other assistants. Elsewhere throughout Latin America, Asia, and Africa there are just over 100 Americans and close to 400 local nationals directly engaged in audio-visual programs supported or jointly sponsored by ICA.

In many countries, the audio-visual program is more than just providing direct support to the American technicians; it includes direct assistance to the cooperating government in improving its own mass communications. Several such projects involve building into the framework of the cooperating government a fully staffed

and trained audio-visual facility capable of supporting the communications requirement of educators, health workers, extension agents, and others concerned with national advancement. A good example of American assistance in developing a nation's audio-visual communications was described in the previous issue of this publication under the title "Development of Iran-American Audio-Visual Service."

National media centers or audio-visual services have also been started with American assistance in the Philippines, Iraq, Liberia, Egypt, and Ethiopia—some of them primarily to augment the educational system.

The Government of Turkey is also aware of the value of audio-visual media as a means of rapidly and effectively carrying new knowledge, skills, and techniques to her people. During the past year she requested technical assistance to develop a nationwide audio-visual communications program.

The general pattern of these cooperative projects involves the host government contributing buildings to house the operations, local staff necessary to man and operate them, a number of local nationals for technical and professional training, most of the local currency requirements, and whatever supplies and equipment can be obtained in the cooperating country. The ICA contribution involves American technicians during the early stages (for advice, organization, and training), equipment and supplies that must be imported, costs of training local nationals in the United States, and other costs that cannot be met from local currencies.

Implementing Audio-Visual Projects Abroad

Such a project presents an interesting challenge for the audio-visual specialist. It is also the ultimate test of his versatility, patience, ingenuity, diplomacy, and endurance. There may be no one in the country who has ever built a sound studio or arranged a production facility. It may be necessary for the audio-visual man to diagram the wiring, allowing for wild fluctuations in voltage and frequency. He may have to explain temperature control to workmen who never heard of it. He may find himself supervising the installation of plumbing, convincing a carpenter of the need for building a light-trap in a certain way, figuring out his own air-conditioning system, and supervising the making of his desk and chairs and file cabinets. He must not only select local technicians and helpers, but he may have to train them in every skill involved in running the entire operation. He must import most of his equipment, so he must be able to anticipate every need and select each

item from catalogs, or prepare complete specifications. Most of this equipment will come from U.S. sources, some of it from Europe, and it may take 9 to 12 months to arrive. When it does, it may have been damaged in transit and need repair, and it will have to be installed by untrained workmen. People will have to be trained to install, operate, and maintain the new equipment, and perhaps they cannot even read the labels and dials, much less the manuals.

In addition to these practical problems, the audio-visual man will have both American Government "red tape" and host government regulations to contend with, at every stage from project negotiation and preliminary budget-making down to preparation of weekly payrolls and cost accounting in two languages.

The audio-visual division in ICA/Washington has problems, too, not the least being the matter of selecting and recruiting the American audio-visual technicians, scheduling their arrival in "Country X" with availability of the building, equipment, supplies, and with the selection of host-government citizens to be trained. The recruitment element has proved time and again to be the big stumbling block in these overseas programs. This is partly due to the unusual qualifications for the overseas audio-visual technician. Some of these have already been brought out. In addition to willingness and desire to go abroad to an uninviting post for a minimum of two years, the candidates for these positions must be highly competent technicians, in one or several fields of audio-visual work. Take an actual case dealing with recruitment for a motion picture production advisor. One applicant had an impressive record as a motion picture producer and he was keenly interested in the position. When he was interviewed, however, it became apparent that he possessed none of the technical skills required in the production of sound motion pictures. By his own admission he had never written a script, shot a film, edited, recorded, or processed. He had been a successful producer in the U.S. and in Western Europe, but he had merely drawn on the technical talents of a large existing commercial industry. He knew how to conceive, plan, organize, and manage the production of films. In the position for which he was applying he would have no local commercial industry. He would have to train and supervise cameramen, directors, script writers, sound men, editors, lighting technicians, and others. That was the purpose of his job, actually, and he couldn't meet it. The high degree of specialization in film production in this country makes it difficult to find motion picture advisors who are skilled in more than one phase of film making.

International AV Training Programs

Now in addition to the formal and on-the-job audio-visual training that is provided by American technicians overseas, a substantial portion of the training is being conducted in special work shops and training programs in locations outside the cooperating country. Two such programs are underway now. At Syracuse University, 22 participants from 14 different countries around the world have been brought together for a year-long practical work course in audio-visual communications. This program is primarily "leadership training" and is being conducted under the joint sponsorship of ICA and the Audio-Visual Center of the University.

To say that this program is intensive would not be sufficient. Crammed into a short 12 months period are the equivalent of 69 credit hours of work with additional hours of practice work. The training includes courses in simple handmade aids, still photography, dark room procedures, filmstrip production, offset printing, exhibits, and graphic arts training (including silk screen printing), educational radio programing, and all phases of 16 mm sound motion picture production.

When these audio-visual-specialists-in-training have completed their work at Syracuse, they will not have simply been exposed to production techniques. They will have actually worked and produced materials in all these media.

During a recent discussion with one of the students participating in this program, someone remarked that the 40-hour-a-week schedule was rigorous but necessary. His reply, "Forty hours! Last week we worked three evenings until after midnight on our silk screen printing project!" Night work was not required, but it is typical of the intense desire of these trainees to master the skills of doing everything themselves. When the darkrooms were closed at 5:30, there were so many complaints that they are now open evenings, and two faculty advisors are on "night call" to answer queries about technical problems that occur long after hours in the work shops.

Concurrent with the Syracuse program, the ICA and 14 Latin American countries are jointly sponsoring an AV training program in Panama. Fifty-two participants are enrolled in this program which will run for a total of 12 weeks. Whereas English was a prerequisite for participants in the Syracuse program, Spanish is a prerequisite for the *instructors* in the Panama program.

Of course, the principal objective of these AV training programs and joint projects is to assure a steady flow of communications materials in support of technical cooperation projects.

What kinds of aids are being produced? How are they being distributed? And how are they being used?

By and large the chart, poster, flip book grouping of aids along with other printed materials such as pamphlets, picture books, and wall newspapers are the most popular. One reason for this is that they are comparatively easy to produce and utilization does not require equipment and power sources necessary for projected media.

The production of motion pictures, filmstrips, and audio aids is also going forward. However, their rate of development is necessarily geared to (a) training of skilled production technicians, (b) availability of necessary production equipment, (c) the building up of a pool of projection and audio equipment with suitable power sources, and (d) technicians to operate, maintain, and repair this equipment.

As one would expect, content and priority of the visual aids is dictated by subject-matter projects. Furthermore, aids are more effective if based on an actual successful demonstration. This point was clearly demonstrated when in connection with a "grow more food" campaign, the Government of India introduced a new method of rice cultivation calculated to more than *double* the yield. The new method was introduced on an experimental basis. The Audio-Visual Division in cooperation with the agricultural authorities carefully documented the successful demonstration with still and motion pictures. As part of the campaign to introduce the new method to all rice-growing areas of India, a campaign package including illustrated booklets, posters, a flannelgraph talk, a filmstrip, and a motion picture was developed. These materials carefully explained the step-by-step procedure of the new method and urged the traditionally suspicious farmers to give it a go. The films and filmstrips were carried into the villages and exhibited from mobile units equipped with generators and projectors. Posters were hung where the villagers congregated, and finally the extension agents and village-level workers moved in with flannelgraph talks and the hand-out leaflets. During the first year of the experiment about 200,000 acres were cultivated completely by the new method and its partial use was extended to nearly 3 million acres.

Again in India ICA audio-visual people, in cooperation with the community development advisors, embarked on a project involving the use of recordings. In community development work the extension worker, or village-level worker as he is called, serves principally as a catalyst. He goes into the village and on the basis of friendly relations and by gaining the confidence of the

village people, encourages community action, such as improving the village well, building a schoolhouse, draining malaria-breeding spots, or building an all-weather road enabling the farmers to get their produce to market. Since the village people are naturally suspicious of any outsider, the village-level worker's task is immediately a difficult one. The new recording project is calculated to assist him in overcoming this initial handicap. Recordings have been made in villages where successful action has been achieved. The recordings, done by the villagers, are of the "success story" type. The message is directed to other villages and describes project experiences and the benefits derived. Duplicated recordings are then made available to village-level workers for use in stimulating similar actions elsewhere. A photo record of a successful village project, along with each recording is further evidence of its authenticity.

Evaluation of Results

We are often asked about the effectiveness of the audio-visual programs. There is no direct answer except as it is found in our own conviction and in the positive results of surveys and researches done in this country and in other areas of the world where audio-visual materials have been employed on a large scale. One answer is the story of a film entitled *Why Babies Die*. This film was produced in Iran in support of a health project aimed at decreasing the infant mortality rate. The film points out how unsanitary practices can cause death and how correct procedures can insure healthy babies. The film is being widely circulated throughout the Middle East. Once when it was shown to a group of village men in a neighboring country, a man got up from his seat, went back to where the women stood, and began belaboring his wife noisily for neglect of duty as a mother. In contrast, when a health team was working in a remote rural area of Iran they found one mother in a village, alone among all mothers, giving her baby precisely the kind of care recommended. Inquiry revealed that her husband had seen the film in a neighboring village and told her about it.

Distribution and Utilization

Utilization is just as important as production of audio-visual materials, and it presents problems of equal magnitude.

Where media themselves are underdeveloped, channels of distribution are inadequate or nonexistent. They must be established in painstaking and ingenious ways. Even when distribution is worked out, utilization problems remain—teachers, village-level

workers, health visitors, agriculturists, and others must be convinced what audio-visual materials can do for them and trained in their use.

This begins to complete the scheme; informed and enthusiastic users of audio-visual resources come to demand more and different materials, to suggest ideas, to give critical evaluations, to adapt and create their own teaching aids. When this happy state is reached, the audio-visual program is a cycle of regeneration.

Utilization of audio-visual materials and methods is promoted through district and regional workshops, training centers, and refresher courses. Wherever field workers are brought together for training or program conferences, every effort is made to include practical work in audio-visual methods. Participation by the audio-visual workers keeps them in touch with program needs, alerts them to communication and instructional problems, and enables them to evaluate effectiveness of audio-visual materials.

Audio-visual specialists take part in teacher training programs, where emphasis is on audio-visual methods in the classroom, creation of handmade materials, and use of low-cost aids. They sit in program conferences where they hear discussion of problems and offer communications solutions—it may be a shortage of candidates for nurse training, for example, which suggests a campaign to educate parents and daughters that nursing is a worthy career. They interest themselves in every field of public service seeking always to identify problems and opportunities that call for audio-visual activity with a definite objective.

Special workshops in the communication skills are becoming more and more common. A recent training session in Turkey points up some of the difficulties that ICA audio-visual people and their local associates constantly encounter. An enthusiastic group of 20-odd teachers and agricultural workers spent an intensive week in a city on the west coast of Turkey, reviewing films and filmstrips available for use in their district, learning how to operate projection equipment, how to conduct presentations, and so on. Their leader was the Turk in charge of the local film library and projector pool. Out of the pool's four motion picture projectors, only one was operable. There were no lamps for the others, and one of these had just arrived from Ankara, where it had been sent six weeks earlier for repairs. The last leg of its return journey was by barge. No one will ever know if Ankara repaired it well or not, because when it arrived, it was absolutely saturated with sea water.

This is a fairly mild example of some of the problems of developing and carrying on a program reaching into remote areas

where maintenance and repair facilities for delicate equipment are lacking, where preventative maintenance is not understood, and where a breakdown of one projector may stop an audio-visual program cold for weeks or months. Yet these are the areas where the program is needed most and where the most impressive results are achieved. Training, training, and more training is one of the answers. Anticipation of repair and replacement needs is another, with ample kits of spares accompanying every piece of equipment.

Low cost, simplified projection, and recording equipment is a definite need. The ICA audio-visual officer in India recently asked if it were possible to develop a filmstrip projector that could be delivered for less than $10, for use with a mantle-type lantern. Such equipment would make it possible for India to place filmstrips in tens of thousands of villages. The inquiry was passed on to several equipment manufacturers. Eventually two young men who handle audio-visual equipment as a sideline to real estate came up with a prototype that seems to fill the bill. A number of these units are being field-tested in a dozen different countries.

The Key Element

Communications—primarily audio-visual communications—may be one of the most important of all the applications of modern technology to the advancement of the underdeveloped regions.

As the communications movement gains momentum, from the small beginnings made under the technical cooperation program, it becomes more and more important to broaden participation in it. Government-sponsored programs are primarily introductory and demonstrational. Government cannot itself meet more than a fraction of total communications needs.

The key element is *cooperation*—broad, whole-hearted, altruistic cooperation.

Right now, ICA itself needs the cooperation of people throughout the audio-visual field. It needs candidates for overseas assignments involving two years of hard work in some fairly difficult locations, it needs universities willing to lend good people to work abroad and willing to give special attention to the training of audio-visual people from other countries.

ICA issues a periodical called *The Multiplier* to keep audio-visual people in about 60 countries in touch with ideas, developments, techniques, equipment, and materials that have special application in underdeveloped countries. It also provides at regular intervals kits of catalogs, announcements of new products, technical

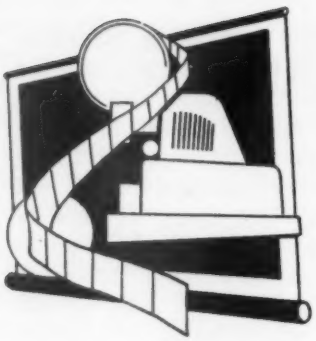
leaflets, and other materials from American manufacturers, professional organizations, audio-visual departments, and so on. To keep up this service requires the cooperation of many agencies and individuals.

Manufacturers of equipment might give increasing attention to markets that are opening up in these long-neglected regions for projection, recording, printing, graphics, photographic, and related materials and equipment. They might give special attention to the unusual problems of marketing in this region—representation by people who know the product, people who are methods men, not mere catalog salesmen; specially designed equipment, or modifications to meet various conditions and requirements; special packing and crating for the rough handling in transportation; training, installation, repair and maintenance representatives, and so on. Catalogs and manuals in Spanish, French, Portuguese, and Asian languages would help.

The Overseas Audio-Visual Services Division of ICA in Washington welcomes inquiries, offers, and suggestions from any and all sources that have anything to contribute to the advancement of audio-visual communications in the underdeveloped regions of the world.

We are a long way from having answers to all the needs and problems that exist. Audio-visual communication is late in reaching these 900 million people, but a start has been made. Increased cooperation encompassing all facets of the professional and industrial segments of the American communications industry will contribute to a successful follow through.

FILM



• ROBERT W. WAGNER

NEW DIMENSIONS IN AUDIO-VISUAL DESIGN

"Live vs. filmed TV?" is a question which has currently assumed almost classic proportions in the television and film industries. It is a question on which opinion tends to waver, depending upon the popularity, or lack of popularity, of specific shows at a specific moment.

A widely held viewpoint, however, is expressed by *The New York Times* critic, Jack Gould, who deplores the trend towards film, criticises the "perfectionism" of the film-makers, and complains that television performers "have been lured astray by the economic and labor-saving advantages of film."[1] He lauds the "first-night quality" of live television, and categorically states that there can be no doubt that live television is better than filmed TV.

On the other hand, Gould agrees that some things are possible only on film, that science is bridging the gap between celluloid and live video, and that "the day is not far off when a TV picture will be shot in the morning and put on the screen at night. Or even better, a live program can be offered with the knowledge that it can be tape recorded and shown a second time with virtually the same quality."

As could have been predicted from a quick look at the existing state of radio broadcasting, it is practically impossible to operate

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[1] Gould, Jack. " 'Live' TV vs. 'Canned'." *N. Y. Times*, February 5, 1956.

a television station or a network without a large backlog of recorded material. Harold E. Fellows, President of National Association of Radio and Television Broadcasters, recently cited a study by his organization showing that stations are averaging 29½ hours of film programing a week, compared with 18½ hours of live programing, and are spending $2575 a week for film procurement alone.[2]

Film, tape, or other forms of recorded programs will always be a necessary and integral part of both commercial and educational television, for rebroadcast, stockpile, legal, and other purposes. Economics and simple studio logistics preclude a continual succession of live shows "back to back." Not all types of performances need to have that "first-night quality," nor is "perfectionism" always a thing to be abhorred. An excellent live show will always have that mysterious ingredient identified as "immediacy," but few people would prefer a dull live show to a good filmed show. The play's the thing, as evidenced by the popularity of filmed shows like *You'll Never Get Rich, I Love Lucy, Disneyland, Dr. Spock, The Honeymooners,* and *Dragnet.* Many excellent live shows, like *Omnibus,* rely heavily on film and *Ding Dong School* went on film early this year when Miss Frances went on vacation.

The intent here is not to belittle the value of live television, nor to enlarge the advantages of the filmed program. Rather, it is to point out the weakness of an "either-or" position in this matter, and to suggest that the trend seems to be towards an interweaving of the technical and creative aspects of these media to the enrichment of both.

Historically, developments in motion pictures and television have been closely related. Charles Francis Jenkins, who took out one of the early patents on a motion picture projector in 1895, for example, also developed a method for "the transmission of moving images by radio" in 1925, and by 1928 had built a continuous projector for the transmission of films by means of television. Edison made discoveries in 1883, described as the "Edison effect," which contributed to the development of the thermionic valve, or electron tube, six years *before* he perfected his famous Kinetograph, the prototype of motion picture cameras.

Rapid advances in the field of electronics continue to draw the media together technologically. Intermediate film systems for theater television, improved kinescoping systems on 35 mm film which are indistinguishable in quality from a live telecast, and the "Electronicam" which combines electronic viewfinders and

[2] *Rushes.* November 16, 1955. p. 2.

image-orthicon cameras with direct film cameras using the same lens system for both, are closing the gap between the two methods of image production. The ultimate stage in this development will be image formation on magnetic tape, the elimination of optical systems, and the practical elimination of transfer losses in the reproduction and transmission of the recorded picture and sound.

Production techniques have evolved along basically similar lines in television and film. The multiple-camera system of present-day live television, for example, was a standard technique resorted to for economic and technical reasons during the early days of the sound film, and has been revived in the shooting of films for television for similar reasons today.

Continuous shooting, experimentally attempted in the film, *Rope*, and single-set stories, as in *Rear Window*, have become standard techniques in filmed TV. The sustained performance and economies effected by these techniques, and through careful preplanning, have greatly speeded up the traditionally laborious, fragmentary process of image building.

Simplified sets, and the creative use of sound in television are reminiscent of the "independent frame" technique developed by certain British film-makers in the interest of economy and greater visual effectiveness by stimulating the imagination of the audience to supply details suggested by carefully designed audio and visual symbolism.

The "series" idea, which has grown during the recent history of the nontheatrical film, has become established procedure in television-film production. The producer is now thinking in terms of a more detailed breakdown of information in a related succession of presentations built around a single theme. The series format serves to remind us that the more information brought to bear on a problem, the better the chances for communication, and that a single, unrelated telecast, film, or book alone are generally not as effective as a more sustained and integrated succession of experiences. Richard J. Goggin, of the Educational Television and Radio Center at Ann Arbor, points out that "educational television has made the series concept not the exception, but one of its basic and general procedures."

Creatively, too, films and television have become more unified. The award-winning motion picture, *Marty*, for example, was written by Paddy Chayefsky, a successful television playwright, and directed by Delbert Mann, a television director. Film director Alfred Hitchcock is making the unbelievable quite as believable in television as he did in motion pictures. Hollywood actors have

successfully transferred to television, and leading television personalities have been starred in film vehicles. Hollywood cameramen are filming major television network shows. The Screen Directors Guild, Warner Brothers, and M.G.M. have television series on the air. N.B.C. paid $500,000 for the television use of the British film, *Richard III.*

Most nontheatrical films, even when intended primarily for the projection screen, are being produced with the technical and legal requirements of television transmission in mind. And, in the other direction, many films originally designed for TV are finding their way back to conventional uses with 16 mm audiences.

Edward R. Murrow's interview with Dr. J. Robert Oppenheimer,[3] for example, has been made available through the Fund for the Republic; and others in the televised series, *See It Now,* are being distributed by McGraw-Hill Text Films.[4] Two C.B.S. television series, *The Search,* and *You Are There,*[5] are available through Young America Films, whose president, Godfrey Elliott, points out that no attempt was made to cut these films down, since it was felt that editing would have impaired the value and impact of the presentations. Furthermore, although each is 27 minutes in length, and originally designed to fit a half-hour time slot on television, this time is still within the desirable screening period for classroom use.

The blending of film and television technique is also being encouraged by the television-film production methods of the Educational Television and Radio Center at Ann Arbor. These include direct filming (as contrasted with kinescope recording), the use of multiple cameras, fluid camera movement, continuous shooting, simplified sets, the series concept, loose, informal program structure aimed directly at the audience, and the frequent appearance of a single, featured performer, usually a recognized authority in his field.

The result has been series like *Music for Young People, The Atom, Writers of Today, Musical Forms,* and other programs which, like *Spotlight on Opera,* featuring Jan Popper, are attempts to achieve, as Mr. Goggin, of the Center, put it, "a happy combination of content, authority, performance, production, and technical proficiency." By stimulating the production of television films

[3] Available from Association Films, Broad at Elm, Ridgefield, N. J.

[4] Films available in this series include *Peaceful Assembly and Free Speech, Segregation in the Schools, National Security vs. Individual Rights, Fifth Amendment and Self-Incrimination,* and *Conduct of Congressional Investigations.* 25-minutes each. McGraw-Hill Text Films, 330 W. 42nd St., New York 36, N. Y.

[5] Available on long-term lease basis from Young America Films, Inc., 18 E. 41st St., New York 17, N. Y., or on a rental from educational film libraries.

through educational TV stations, university film production units, and educationally-oriented commercial producers, the Center is helping to bring new understandings and insights to both film and television production. The work of the Center is thus another important factor in an expanding concept of picture making.

Rather than setting the recorded program against the live, or pitting the film-maker against the television producer, then, it would seem less wasteful of time and energy to explore the whole business of picture-making in terms of the basic problems of communication. Viewed in this light, we may be able to analyze factors which make for effective audio-visual communication, and learn how to apply what we find to the production of improved telecast and film materials of all types.

In defining the difference between motion pictures and television, the function of the former has sometimes been described as one of "reproduction," and the latter, one of "transmission" of images. This description, except for superficial purposes, scarcely holds true. Technically, both film and television are methods of reproduction *and* transmission of images.

Psychologically, both are highly selective symbol systems. Neither can present "reality" as it actually happens. Although in television we can "see it now," the image must first pass through a system of lenses, camera angles, decisions by the director, and engineering stages which turn the reality into a performance. Sound and video in television, as in film, are selected, abridged, and organized within a limited time period, within given points of view, and within other technical, legal, and creative restrictions and, to that extent, make the event a *reconstruction* of reality.

This may seem an obvious and perhaps somewhat academic observation, unless one remembers the director's skillful handling of the Kefauver hearings, the McCarthy investigations, and the political conventions of 1952. Through the use of selective observation, and the close-up, the television viewer got a much more abridged, intensified, and dramatic reportage of a single event than was possible to most of the people in attendance at these affairs. The television audience was "there," but there in a contrived sense which went far beyond reality. The "reality," for the audience, was an electronic image on a 21-inch screen.

The important, and doubtless subliminal factor of "immediacy," is, of course, unique in television, and much more exciting than it is in live radio. The sense of the living present is a sense of theater, of not knowing definitely how the whole thing will turn out. "Immediacy" would seem to be another, albeit a new and important,

dimension in expositional design, both for entertainment and for educational purposes. It is an element, the use of which must be decided by the picture maker just as he must decide upon the use of sound, color, music, lighting, casting, sets, and other elements. Whether to take advantage of the element of immediacy must finally depend upon *the total design of a specific communique.*

Television has unquestionably stimulated rethinking about the nature of that design. The result may eventually be the emergence of a class of audio-visual producers or designers capable of using and integrating the several methods—photographic and electronic —of image reproduction and transmission in terms of the basic communication problem of who, says what, to whom, when, in what form, and under what conditions.

It is hoped that the fruitless controversy between motion picture and television interests, at least in the field of education, will eventually be sublimated to larger goals, and that the energies and resources of both will be applied to the solution of some of the basic, unanswered questions in communication.

For example, how can we reconcile the necessity of speed and economy in production with the fact that thoughtful presentations take a lot of time, expert planning, and often a great deal of money? How can we avoid falling into stereotyped programing patterned after the "successful" shows? Can materials be designed which will be equally effective when televised on the air and when projected in the classroom? What are the real values of "immediacy," color, music, and other possible subliminal factors in audio-visual production?

"Live or filmed TV?" is a question which cannot be sensibly answered in a categorical manner. It can only be resolved in terms of specific objectives by the producer who understands the problems and possibilities of both media, and who can put their multiple and interacting elements together in terms of a single, creative act—whether the final performance be live, on film, or a combination of the two.

When the expert in one medium becomes expert in the other as well, we may, indeed, discover new and exciting dimensions in audio-visual design.

BOOK REVIEWS

PARKER, EVERETT C.; BARRY, DAVID W.; and SMYTHE, DALLAS W. *The Television-Radio Audience and Religion.* New York: Harper and Brothers, 1955. 464 p.

Reviewed by
• **JAMES A. PETERSON**

The monumental research study was designated to promote an understanding of the "effects of religious programs broadcast over radio and television." Although religious broadcasts have been a feature of both media since their inception, this is the first comprehensive effort to scientifically relate the content and form of the presentation to the sociological and psychological characteristics of an audience. Liston Pope aptly remarks in his preface to the book that "more is known about the best methods of selling soap on radio and TV than about teaching honesty or inspiring reverence."

In order to accomplish their purpose the authors studied in great detail the value-content of the religious presentation, the needs and personality traits of potential listener-viewers and the impact of different programs on the listener-viewer. Thus a full-orbed research design included all three of the major aspects of communication. Because many facts of this study had to do with the relationship of religious programing to secular presentations there are vital contributions regarding the general status of both

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radio and television. A final value of the study has to do with its contributions as a pioneering effort in research design in the communications field. While many individuals helped in the study, the chief architects were Everett C. Parker, director of the Office of Communication of the Congregational-Christian churches, David W. Barry, a sociologist trained in social surveys and Dallas W. Smythe, an economics professor at the University of Illinois who is universally known because of previous research in the field of communications. This review must necessarily leave out many of the important contributions of this book but it will consider briefly the major scope of the study and then present a critique of some phases of the work.

The study was made in New Haven, a city of 250,000 persons. Hollingshead's 5 percent sample was made available to the research group as well as a vast amount of demographic and social-stratification information compiled earlier. Thus the religious, educational, occupational, nationality, social class, and cultural indices of the social matrix of the study were already known as givens when the study was initiated. The social structure of New Haven is characterized by a tight compartmentalization in which population segments are segregated on the basis of race, religion, status, class, and social level. Fifty-two percent of the population of the sample (largely Irish and Italian in the nationality background) are Catholic, 29 percent are Protestant and 9 percent are Jewish. In New Haven there are 102 Protestant churches with a membership of 37,721 persons, while the parishes of the Catholic church count 128,995 members. There are 15,000 Jews and some 8000 families have no church relationship. The description of the community and of its religious organizations occupy the first four chapters because of the basic conviction of the authors that the social position of a person largely determines his selection of and his response to radio or television programs.

The next section on content analysis studies the "avowed policy, thesis, purposes, and practices" of religious broadcasters. The former were studied by means of a questionnaire while the value-orientations of the various religious presentations involved an analysis of words and concepts utilized by the speaker with "favorable or unfavorable associations." In addition sample sermons or themes of dramas from the major programs available to the New Haven audience are presented with an interpretation of the "normative belief and behavior" proposed as the goal of life by these programs. An interesting contrast is presented in terms of the authoritarian and value-polarization gradients of various religious groups on the air.

After the report on the program characteristics of religious broadcasts, the authors turn to a study of the special characteristics of the New Haven television audience in general and then of the special "audience for religion." A basic review of the total offering of TV reveals that entertainment programs dominate television with some 73 percent of all broadcast time. In contrast, religious programs use one out of every 100 telecast hours, but still three out of five households watch or listen regularly to this type of program. Catholic presentations capture the largest amount of viewing time, but Protestant audiences are more diversified. Some 256 households out of 3559 in the sample listened to Protestant offerings, while 1021 households listened to the five Catholic presentations. *Bishop Sheen* (23.4 percent) and the *Greatest Story Ever Told* (7.5 percent) had by far the greatest audience response. No other religious program came up to 2 percent of the total available audience. The audiences of each religious program are analyzed by social class, age, occupation, education, and marital status; and this analysis reaffirms, generally, the initial hypothesis of the authors regarding the segmental nature of audience participation as dependent on social position. There is here, in the wealth of material presented, the possibility of great returns from further study.

The next section of the book deals with the psychological needs and values of the potential audience. Conclusions are based on "depth" interviews of 59 families, half of whom were religious listener-viewers and half who were not. The interviews were recorded on tape and their interpretation was first made by a panel on the basis of sociological identification, social orientation and behavior, psychological pattern, and religious background. After this first establishing of typological categories the remaining interviews were screened by individuals. The three authors conducted some 75 percent of these interviews. They were later correlated with two questionnaires which the families filled out after the interview itself was over; one a standard information sheet and the second, a modified form of Adorno's "F" scale (The Authoritarian Personality) which was intended "to reveal something of the authoritarian and antiauthoritarian structure of the respondents personality." A somewhat unique classificatory device was utilized to describe personality types—those whose major preoccupations or interests were focused on: work-centered, status-centered, self-centered, family-and-home-centered, formal-religion-centered, and social-responsibility-centered. The conclusion of this section emphasized the fact that religious programing cannot be successful in reaching its goals unless it relates to the personality and personal-social situation of audience members, which conclusion is regarded

as more dynamic in basic motivation than denominational affiliations. The book ends with five recommendations for strategy at the tactical level (short term) and four recommendations at the policy level (long term) so that the radio-television media will minister in a diversified way to the "varities of human souls that inhabit this country."

It is apparent in even such a brief and inadequate summary that religious leaders have a wealth of specific and generalized data on which to think through their future use of the various communications media and to aid in structuring further fundamental research. As each new study builds upon the advances of previous research efforts, it is incumbent upon the social scientist to assay critically the particular values and the limitations of each new step in the search for truth. This leads us to a short evaluation of several phases of this study.

The first part of this evaluation deals briefly with some relatively new insights which came out of this study as far as religion is concerned. One of the most enlightening chapters was the one which described what the Protestant clergy think about TV and radio. In general, the findings were that the ministry is not well-trained for broadcasting and that it is not well-motivated to take time to become well-trained; for it regards broadcasting as a minor area of interest. If it is true, and the study assumes it to be true, that the future of religious broadcasting must be in the hands of the ministers, then it is axiomatic that through institutes, seminars, books, and every other means they must have help both in recognizing the crucial nature of broadcasting in the formation of attitudes, and in character structuring. The reviewer would also add that the sociological fact of high mobility is putting a premium upon creative efforts of the church to discover ways of ministering to people on wheels, and radio and television seem to offer such an opportunity.

This leads us to one conclusion of the study that only one hour out of every 100 devoted to telecasting is assigned to religious programs. Furthermore, these are hours which are at the low point of audience potential. While the TV stations may be criticized for this, some of the leaders of TV have remarked off-stage that when religion offers sufficiently worthwhile programs, TV will accommodate them with better times and more of them. Is there, then, some relationship between the training of the ministry, ineffective programing, and what is regarded as discriminatory treatment by station managers? We would assume that the facts indicated by this study would go far towards making such a conclusion plau-

sible. If religious institutions are to obtain maximum response from stations and from audiences, it must be on the basis of programing which is on the level of commercial or education efforts. While such may not have been the intent, in the analysis of the value and methods of the present radio and television programs by the authors, alert religious broadcasters will find many suggestions implicit in those statements.

The social scientist will be especially concerned about the methodology of the study. The problem is always raised regarding the adequacy of the sample on which such a study is based, and of course, every sample can be criticized from one point of view or another. In the introduction to this study Liston Pope says: "There has been no assumption that New Haven is a 'typical' American community—but a careful study of one community can illuminate social patterns and personal problems in many others." This is a humble statement but it somewhat begs the question because those concerned with sampling adequacy all agree that there is no typical area, but they do want to know to what extent any research sample is sufficiently representative of any other universe to make generalizations based on that specific sample meaningful elsewhere. Thus the 5 percent sample in New Haven might have meaning only for New Haven; it might have meaning only for urban areas; it might have meaning only for the East Coast; or it might have significance for the whole nation. It does not seem quite enough to say that, in effect, the study of any community, anywhere, at any time, can throw light upon the social structure and personality problems of persons in all other areas. For that reason it does seem essential to the social scientists to develop skill in making some critical evaluations regarding the degree to which generalization is possible. It is assumed in this case that the findings in New Haven have meaning for religious broadcasting throughout the country. This is implied in the title of the book and in the preface by Dr. Pope.

As there have already been some searching comparisons made of New Haven as a representative community itself we shall only recall here that 55 percent of the population are of Irish or Italian background and that Russian, Polish, or Austrian Jews make up another 16 percent of the community. Thus at least 70 percent of the sample population derives from normally Catholic or Jewish backgrounds which is, of course, not characteristic of our normally Protestant-oriented country. The extreme rigidity of the "parallel class structures" which have been so well described by Hollingshead also raises a question as to the comparability of this with other same-sized cities in the U. S. On the other hand, the sacredness

of the tradition of both the university and of the Congregational heritage add another rather unique situation.

But because this is a religious survey we would want to be sure that New Haven represented at least some similarity to the nation as a whole if we are to use judgments based on research in New Haven for national purposes. Fifty-two percent of the households in the sample are Catholic; nationally the figure stands a little less than 17 percent. About 29 percent were Protestant but this is far below the national figure for Protestantism. There is a further skewing of the Protestant group itself. In New Haven the Congregational and Episcopalian groups make up at least 60 percent of the adult church membership and contribute some 56 percent of the church school enrollments. But nationally these two churches make up less than 5 percent of the total Protestant make-up. Religiously, this fact is significant because Congregationalists are generally liberal in their theological orientation and highly educated as to a ministry, while Episcopalians are the most highly ritualized group in Protestantism. In all fairness, it should be said that this same situation does exist in many communities in central New England, so that Dean Rockwell Harmon Potter of Hartford Seminary can honestly proclaim that he has always been a member of a minority group; but this is not true elsewhere in the country. So that, religiously speaking, the sample is badly skewed in two dimensions.

All samples are skewed one way or another, and they still give some insights; but the unfortunate part of this situation is that the authors were attempting to study a strategy for Protestant broadcasting. In the 3559 households of the 5 percent sample only 256 households viewed the 11 Protestant programs available at the time of the study. Eighty-nine of those households are Catholic and Jewish; so that this leaves some 167 Protestant families that heard or viewed the 11 Protestant programs. We also have the reaction of 139 Protestant families to Catholic programs; but we are not primarily interested in this although it gives us some insight into responses to authoritarian reactions, and this too has meaning. If the subsample is a good one, then we would expect about 60 percent of the subsample to be composed of Congregationalists and Episcopalians which would leave roughly about 60 families of Methodists, Baptists, Presbyterians, Lutherans, and other Protestant groups, for measuring their reactions. We wonder whether the Methodists, who are embarking on an ambitious national program of TV dramatic presentations, can generalize too much on this study as a basis for their own decisions. Considering the religious and social composition of New Haven, it is doubtful if a more unlikely

community could have been found in which to study the radio-television ministry of the Protestant church. Having raised the question, it is important to say that the study certainly did achieve insights which are valuable to the Methodists as well as to the Congregationalists. Some of these have already been stated. All I am trying to say is that had a Mid-Western or Far-Western community been chosen, we might have had more responses quantitatively, and the responses would certainly have represented a broader theological polarity.

This brings us to another sample and another sampling technique—that of the "interview chunk." Fifty-nine families were intensively interviewed in order to discover something of their needs and the way religious programing met these needs. The reviewer has several questions regarding the efficacy of this procedure, but he would like to emphasize the value of this effort. Certainly basic to any effective communications research is concentration upon discovering needs which, when utilized for motivation for viewing, assure audience participation. The study is notable because it rejected any thought of dropping its research at the point where religious groups went through the motions of standing before a mike or a camera. It inquired as to how it could measure effective presentations. As such, it has set a standard for research into religious (and other) broadcasting which augers well for the future.

The authors seem to walk a semantic tightrope in saying what this "chunk" is and what it is not. In the first place, they honestly say it is not a subsample, but then go on and say that: "Enough interviews were conducted in the underrepresented cells to provide basis for analysis of the attitudes and interests of such persons." Certainly that is all that is required of any interviewing technique. Let us see if this was accomplished. Forty-three households or 72.8 percent of the "chunk" were Protestant, although in the sample the study used only 29 percent were Protestant. Seven families or 11.9 percent of the "chunk" were Catholic as compared to 52 percent of the sample. Fifty-seven percent of the "chunk" came from social classes I, II, and III but these classes contributed only 34 percent of the 5 percent sample. The "chunk" was divided evenly between viewers and nonviewers. Do the authors really contend that three interviews with Catholics who viewed and four with nonviewing Catholics are sufficient to generalize about some 1879 Catholic households? Or that three interviews with Jewish families can be depended on faithfully to reflect the situation in some 315 Jewish households? Is it a valid research technique to use one sample for generalized interviews and another for intensive interviews and to feel assured that the second does represent the first?

Again, the fact that this study supposedly was oriented towards Protestant strategy in broadcasting would justify the deviation, but this ought to be stated.

Of even greater concern is the method used in the "depth" interviews. The authors assume that it is possible in one interview of from two to four hours to assay the basic motivations, likes and dislikes, hopes and fears, attitudes and sense of selfhood that explains the interviewees with a "deep comprehension." The interviews were conducted somewhere along a permissive-directive scale with as much volunteered information garnered as possible, followed by the introduction of a series of standard probes regarding various aspects of the reactions of the family to communication media. These interviews were structured to elicit both sociological and psychological data. The interviewers are to be commended because of the many fresh and meaningful insights they obtained regarding roles, role transitions, role expectations, social wishes, social-cultural motivations, and family interactions. There is a wealth of material presented and perhaps more which could not get into the book.

However, when we consider the validity of the psychological insights and generalizations, we must of necessity remember the dynamics of rationalizations, evasions, and repressions. It is dubious whether the most skilled psychiatrists in the country would be willing to venture even a tentative diagnosis of personality after such an interview. Individuals habitually use verbal gestures as defenses, and this is so unconscious a process that it is extremely difficult to get at motivational material. It is improbable that even with the best rapport it would be possible for an individual to begin to share even remotely the vital and dynamic facets of his basic personality structure. It is most probable that what came out of these interviews were the same kind of rationalizations used in daily life. An illustration comes logically from the long essay on Mr. West, who in a five hour interview revealed considerable guilt reaction. The authors tell his story of the treatment of his wife and daughter and then proceed to study the reasons for his guilt as coming from (a) early indoctrination with a Calvinistic theology of sin and salvation, (b) his violation of the ethical standards of his peers, and (c) his reduction of human beings to commodities. West went back to church after hearing Peale on the TV, and the authors discuss his chances for growth. They feel that he may be helped by his minister in "growth in understanding" for "If . . . West does learn a new and clear understanding of the will of God and the nature of human dignity, the effects on him will be really chastening. Then, for the first time, he will realize the extent of

his previous sin. Then he will come face to face with his real guilt. Then will a genuine conversion take place." This illustration does not do justice to the many valid social-psychological insights the authors have given in terms of Mr. West's situation, but it is a fair illustration of the level of psychological insight on which this book depends. There is here no differential understanding between understanding as an intellectual or conative tool and a profound emotional integration which is generally basic to any therapeutic approach to fear or guilt. There is here no indication of awareness of those profound historic personality dynamisms which *determined* West's "sin" in the first place and which must be slowly and patiently explored before he can deal with the overlay of response and remorse which they caused.

This brings us face to face with the most critical issue involved in the conclusion of this book. On the basis of these interviews, the authors construct a new group of rubrics to describe personality valences which are to be used for program construction such as: family-and home-centeredness, self-centeredness, social-status-centeredness, work-centeredness, social-responsibility-centeredness, and formal-religion-centeredness. These items seem too general and too vague to use in reaching the profound difficulties of the human psyche. They certainly describe areas important to ministering to modern role playing and role conflict. But consider two men who, on the basis of the descriptions of social-responsibility-centeredness, are to be the focus of the same program. One is a compulsive, guilt-ridden figure endeavoring to build up a mountain of good deeds to expiate his neurotic hostility and guilt toward his departed father. The other is a well-integrated person intrapsychically, who is really interdependent with his fellowman, and who can afford spontaneously to have concern for others because he has a kind of deep inner security about himself. They work side by side in community affairs, they articulate the same kind of purposes, they have the same enthusiasms; but in one case the result is different from the other.

Religious and psychological insight must be acute enough to discriminate sharply and then to program effectively for the differential needs discovered for individuals who seemingly fall at the same level in any social description. The problem of personality redemption through religious broadcasting involves such a profound comprehension of personality and social disorganization that it can effectively say to men with different configurations of need: "Come, I am the Good Samaritan." This study is important because it has focused attention on this vital problem. It is the reviewer's feeling after reading the cases and the conclusions and

formulations that it has not yet given a definite way of doing this . . . nor could one study do it . . . nor 59 interviews; but the challenge they give and the stimulation is profoundly worthwhile.

This leads us to a consideration of the recommendations at the end of the book. The first has to do with understanding the nature of social orientation and the basic personality characteristics of different segments of the radio and TV audience. This is one of the outstanding insights of this book. The next two recommendations are valuable as they stress the more adequate utilization by churches and ministers of present religious programing and a growth of appreciation for further research in the field. The next two recommendations relate to a careful definition of the future role, purpose, and strategy of broadcasting by churches. These recommendations are sound, but as already pointed out there are many other incidental values for the broadcaster not hammered home in this book. There is still much gold to be mined from its pages.

The reader must now be aware of the value of the work that has been presented by these three authors and their assistants. Rarely has so much breadth of dimension and boldness of design characterized communication research. If it falls a little short in certain areas, it can well be because of the sheer brilliance of its conception—a conception which looks forward to a learning theory correlated with basic psychological configurations of audience groups—a conception which will finally involve the most profound skills of all of the social scientists, the psychiatrists, the educators, and the theologians before an integrated overview is documented along the lines projected in the design of this study. Every broadcaster, sacred or secular, will profit both by the study of these pages and by the stimulus to further analysis which it engenders.

JOHNSON, DONALD M. *The Psychology of Thought and Judgment.* New York: Harper and Brothers, 1955. 515 p.

Reviewed by
• **FRANKLIN FEARING**

The author of a book on the psychology of thought initially faces a critical problem. He must establish the existential character of his subjectmatter. That is, he must deal with the problem of whether "thought" differs from other processes. In the climate of contemporary psychological theory this is a difficult, perhaps

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impossible task. But if it is not done almost certainly the book becomes a discussion of a variety of topics which have little in common except that in a general way they are concerned with those intellectual processes which are vaguely termed "mental."

The present book illustrates the difficulty and has not escaped the pitfall. The author is aware of the problem. He notes that the field is "ill-defined," but finds a "central theme" in the problem-solving activities of the "socialized human being." This covers a lot of territory as a survey of the chapter headings indicate. These cover such topics as perception and thought, learning and thought, thought and judgment, and motivation and thought. There are also chapters on group problem solving, the dynamics of thought, individual differences in thought and judgment, and the improvement of thinking.

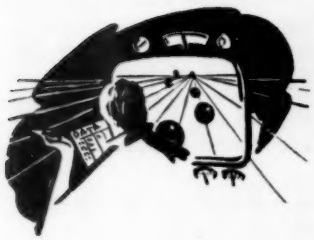
The treatment of these topics ranges from the rigorous and technical to the merely commonsensical. According to the author this variation in treatment is the result of the "uneven light" which psychology throws on these subjects.

The diffuseness of subjectmatter plus the uneveness of treatment inevitably gives the book a somewhat vague and rambling character. This may reflect the state of the subjectmatter as the author appears to think, or it may reflect the fact that his search for an integrated, cohesive field of study to be labeled "thought and judgment" has been unsuccessful. The present reviewer is inclined to the latter opinion.

This is not to say that the attempt has been futile. The author has brought together a variety of interesting data, methods, and experiments, and looked at them critically from a fresh point of view. Such a look has its uses and may foreshadow a revival of interest in what used to be called the "higher mental processes."

Since the author was apparently consciously avoiding a rigorous definition of his field, and was, in fact, casting a very wide net, it seems surprising that no attention is given to the problems of language in relation to thought. This is almost Hamlet with the Prince left out. The current research and theorizing in this field could conceivably yield much that is relevant. An instructive and exciting chapter on language and thought with special reference to the theories of Benjamin Whorf could have been written.

The book is simply and clearly written. A comprehensive list of references at the end of each chapter adds to its value.



RESEARCH ABSTRACTS

FILM

McINTYRE, CHARLES J. *Training Film Evaluation: FB 254—Cold Weather Uniforms.* Technical Report SDC 269-7-51. Instructional Film Research Program, Pennsylvania State University for the Special Devices Center, Office of Naval Research, Port Washington, L. I., N. Y., August 20, 1954. 14 p.

Purpose: This study was done to discover whether a humorous approach in a training film affects learning. In the film a bumbling central character made errors and was corrected by an off-stage narrator in the typical "Pete Smith" approach. Specifically, the purpose of this evaluation was to determine any difference in teaching value of the humorous film as compared with a film having the same instruction presented in a straight-forward interesting manner without the "Pete Smith" approach.

Procedure: A modified version of the film was made in which comedy sequences were replaced with titles to organize the film and orient the learner to the next topic to be discussed. The titles were read aloud by the commentator. Another version was prepared with no titles but title information was read while blank film was projected. 426 trainees participated in the experiment. A 64 four-choice information test and an opinion questionnaire were administered to discover differences in the treatments.

Results: There was no significant difference in learning between the original film and one in which the "Pete Smith" effects had been deleted. Viewers learned significantly more from a film in which comedy effects were deleted and printed titles were substituted in their place. Viewers who saw the humorous version and also the version with titles tended to prefer the film they saw last, regardless of which one it was. These findings indicate that the additional cost and effort of including "Pete Smith" effects in a film cannot be justified on the basis of increased learning. Other film techniques such as the addition of titles can be justified where humor cannot.—*L. Twyford*

LEFKOWITH, EDWIN F. *The Validity of Pictorial Tests and Their Interaction with Audio-Visual Teaching Methods.* Technical Report SDC 269-7-49. Research by the Instructional Film Research

Program, Pennsylvania State University for the Special Devices Center, Office of Naval Research, Port Washington, L. I., N. Y., August 15, 1955. 18 p.

Purpose: In research with instructional films and other visual aids the experimenter is faced with obtaining a criterion against which experimental groups can be compared. A written test would probably be inaccurate for measuring performance and where performance is the aim of instruction, a performance test is desirable. Performance tests are often expensive to administer and time consuming. Pictorial tests were studied in this research design to discover how accurately they should simulate the actual equipment when used as a substitute for actual performance.

Procedure: The visual material for the three comparisons consisted of (a) the actual equipment, (b) photographic slides, (c) outline drawings on slides. Test material consisted of 60 questions of the multiple-choice type. Half were identification of function and half were identification of nomenclature. 280 recruits heard a recorded lecture and were shown the slides after which they were tested by one of the three test methods.

Results: Pictorial tests were found to measure learning best the more nearly they are like the object they represent. Test scores were highest when the pictorial teaching aid was similar to the pictorial testing aid. These could be slide or motion picture tests. It was concluded that for evaluating audio-visual teaching methods one should use an actual equipment test if possible.—*L. Twyford*

McINTYRE, CHARLES J. *Evaluation of Motion Pictures To Simulate Reality in the Thematic Apperception Test.* Technical Report SDC 269-7-47. Research by the Instructional Film Research Program, Pennsylvania State University for the Special Devices Center, Office of Naval Research, Port Washington, L. I., N. Y., September 23, 1955. 12 p.

Purpose: The Thematic Apperception Test has been widely used to permit people with personality problems to project themselves into situations portrayed by still pictures. This study was done to discover whether motion picture films could be used to make situations portrayed by the test seem more real and thereby increase their effectiveness in diagnosis of personality problems.

Procedure: Twenty-five film sequences 35 seconds in duration were prepared. They covered the material normally presented by cards 1, 6BM, 7BM, 14, 20, 86F. Five versions were prepared increasing in degree of reality. These included (a) a photograph of the TAT card, (b) scene with real people, (c) scene with movement, (d) scene with interaction of characters, (e) scene with interaction of characters and speech. 425 college students saw the films and were tested using 20 questions from the Minnesota Multiphasic Personality Inventory.

Results: Persons did not project more upon pictured individuals who were physically similar to themselves. Similarity may actually discourage projection. The findings suggested that a film version of the Thematic Apperception Test may not be the most effective use of motion pictures for this type of personality analysis. It would appear that motion pictures for personality assessment should minimize specific actions in scenes. Specific actions may

structure the pictured situation and reduce ambiguity thus decreasing their projective value.—*L. Twyford*

ASH, PHILIP and JASPEN, NATHAN. *The Effects and Interactions of Rate of Development, Repetition, Participation and Room Illumination on Learning from a Rear-Projected Film.* Technical Report 269-7-39. Research by the Instructional Film Research Program, Pennsylvania State University for the Special Devices Center, Office of Naval Research, Port Washington, L. I., N. Y., October 12, 1953. 20 p.

Purpose: For teaching a skill using a rear-screen projector this study investigates the effect of the amount of room light, the effect of repetition, and the effect of participation using films with high and low rates of development.

Procedure: Using the task of assembly and disassembly of a breech block, 1100 trainees saw a film and were tested. Two versions of the film were used which varied in the speed with which they presented the material. Two conditions of amount of light were used: daylight viewing and darkened room. The effect of repetition was studied by showing the film once, twice, or three times. Some groups participated while the film was being shown by trying to assemble it.

Results: It was concluded that a slow rate of development is more helpful to learning than a fast rate. Repetitions of a film increased learning up to a point. Participation increased learning provided the rate of development of the film was slow enough to allow the learner to participate without missing important information. Although the experiment indicated that a high level of room illumination is detrimental to efficient learning, this was thought to be true only if a large number of learners are seated at extreme angles to, or distance from, the screen.—*L. Twyford*

McINTYRE, CHARLES J. and McCOY, EDWARD P. *The Application of Sound Motion Pictures for Recording Billet Analysis Information.* Technical Report 269-7-41. Research by the Instructional Film Research Program, Pennsylvania State University for the Special Devices Center, Office of Naval Research, Port Washington, L. I., N. Y., March 10, 1954. 15 p. Details reported in Bureau of Naval Personnel Technical Bulletin 53-6, November 15, 1953 (Available at the Special Devices Center). 159 p.

Purpose: This research concerns the feasibility of films to collect billet analysis information. How an operator performs his job or how a piece of equipment is used in training cannot easily be described or understood using words alone. Films were proposed as a means of recording this visual information.

Procedure: Job information needs were studied through interviews with billet analysts and with billet incumbents. Fifteen film examples were planned and produced. These included products of no-script and minimum script procedures; examples of magnetic and single system sound recording, lighting from simple to complex, five camera speeds, and pictures shot by individuals with differing degrees of photographic experience. Film analysts reviewed the films to indicate their usefulness.

Results: Films were found to be useful in that they augment the analyst's power of observation, permit repetition of the filmed task, and permit large numbers of persons to view a task without the expense of a field trip. Several filming methods were developed each appropriate to a specific use. It was concluded that useful films can be prepared locally by local personnel quickly and at low cost.—*L. Twyford*

INSTRUCTIONAL FILM RESEARCH PROGRAM. *Evaluation of Film: Military Police Support in Emergencies (Riot Control) TF 19-1701.* Technical Report SDC 269-7-52. Research by Pennsylvania State University for the Special Devices Center, Office of Naval Research, Port Washington, L. I., N. Y., October 28, 1954. 37 p.

Purpose: This research was done to discover whether the training objectives could be achieved using simpler and less expensive film production methods than those employed in this film. Realistic riot conditions were staged in the typical "Hollywood" manner for this film. It was important to discover whether there is a need or value in employing the lavish crowd scenes and complex staging that was employed.

Procedure: A filmograph version was prepared closely paralleling the original film and was produced by copying and printing frames from the original film. In a second filmograph version large crowd scenes in the original film were replaced by still "stock shots," by scenes which could have been stock shots, by simple diagrammatic representations of troop formations and by staged scenes in which relatively small numbers of people appeared. The sound was identical in the three versions. After seeing one of the film versions recruits were tested with a paper and pencil test of information about riot control tactics and procedures and by a questionnaire designed to measure attitudes.

Results: The original motion picture taught slightly more information than filmographs covering the same content. There was no significant difference in learning between the filmograph with scenes from the original film and the filmograph using stock shots. Attitudes were affected equally by all films. It was recommended that the additional cost and planning required to provide realistic settings for training films cannot be justified on the basis of the small amount of increased learning found in this study.—*L. Twyford*

RADLOW, ROBERT. *The Relation of Some Measures of Ability to Measures of Learning from Sound Motion Pictures.* Technical Report SDC 269-7-58. Research by the Instructional Film Research Program, Pennsylvania State University for the Special Devices Center, Office of Naval Research, Port Washington, L. I., N. Y., September 20, 1955. 14 p.

Purpose: The purpose of this research was to discover whether there is a relationship between various mental abilities and ability to learn from a film. If a relationship could be established it would be possible to produce a film specifically for an audience with known mental abilities.

Procedure: Two films were shown to basic trainees for whom accurate descriptions for five kinds of abilities were obtained. The abilities were verbal

comprehension, general reasoning, perceptual speed, spatial orientation, and spatial visualization. Informational tests were prepared on the film content and were administered after the film showing.

Results: High verbal comprehension, general reasoning, and spatial orientation were found to be the characteristics of superior film learners. It was evident that it would require the administration of an extensive battery of tests and considerable analysis of the data to make specific recommendations based on the mental abilities of a group.—*L. Twyford*

RIMLAND, BERNARD. *Effectiveness of Several Methods of Repetition of Films.* Technical Report 269-7-45. Research by the Instructional Film Research Program, Pennsylvania State University for the Special Devices Center, Office of Naval Research, Port Washington, L. I., N. Y., May 6, 1955. 25 p.

Purpose: The purpose of this study was to investigate certain problems related to the effective employment of repetition in learning a skill from an instructional film. Several problems were studied. Is it better to show the same or a different presentation of the task when the task is demonstrated repeatedly? Is it better to insert a short practice period between two film demonstrations of a task than to permit practice during the film demonstrations? What is the effect of camera angle and level of verbalization?

Procedure: Five interrelated experiments were conducted to determine the effect of the variables. In the studies which involved tying knots, 2680 naval recruits participated. Effectiveness was measured by having the men tie knots after seeing the films under the conditions imposed by the particular experiment and by scoring their success.

Results: More learning occurred when a single demonstration was repeated than when an equivalent number of different demonstrations was given. There was some evidence to suggest that differing presentations of a task may be somewhat superior to repeating the same presentation when level of verbalization is varied. These differing presentations should probably progress from low to high verbalization. Only a limited amount of response generalization was found to occur, suggesting that it is desirable to teach a skill in a context as similar as possible to the desired performance. Permitting individuals to practice a perceptual motor task between learning experiences did not prove to be an aid to learning. Concurrent practice was not found to be an aid to learning. A motor skill learned from one point of view can be best performed when the viewpoint during performance is the same.—*L. Twyford*

BLAIN, BERYL BRUCE. *Effects of Film Narration Type and of Listenability Level on Learning of Factual Information.* Doctor's thesis, Bloomington, Indiana: School of Education, Indiana University, 297 p. (Typewritten)

Purpose: To determine the relative effectiveness of two types of film narrations (expository and personalized-dramatic) on the learning of factual information with pupils of two grade levels (fifth and eighth).

To determine the relative effectiveness of film narrations of varying listenability difficulties on the learning of factual information with pupils of the two grade levels.

Procedure: Four narration versions of the film, *Monarch Butterfly Story*, were written according to predefined characteristics of the expository type and the personalized-dramatic type of narrations and according to fifth and eighth-grade classes but were assigned to the homogeneous eighth-grade groups by formula. Four magnestriped prints of the film were obtained, and the four film narrations were magnetically recorded on these prints.

A 51-item test based on the factual information presented in the film narrations was developed on a lower sixth-grade readability level as determined by the Dale-Chall readability formula.

A series of duplicated experiments were conducted with 330 fifth-grade pupils from six elementary schools and 328 eighth-grade pupils from three junior high schools in the Pueblo, Colorado, public schools. Film narration versions were randomly assigned to the unequated, intact, heterogeneous fifth-grade classes but were assigned to the homogeneous eighth-grade groups by random selection within a stratified sample. Three fifth-grade and three eighth-grade classes were shown each of the four experimental versions. All subjects were given a pretest and a post test following the film showing. A retention test, given a week later, concluded the experiment.

Analysis of variance and analysis of covariance were used to determine significant differences between experimental groups.

Results:

1. Eighth-grade pupils initially knew more, learned more, and retained more about the life cycle of the Monarch butterfly than did the fifth-grade pupils.

2. Fifth-grade pupils were not measurably affected by the listenability difficulty level of the narration nor the type of narration.

3. Eighth-grade pupils learned significantly more when factual information was presented in an informal, conversational, and more personalized narration, regardless of the listenability difficulty level.

4. The listenability difficulty level of the film narrations did not measurably effect the learning of the eighth-grade pupils.

5. With one exception, eighth-grade pupils learned more than fifth-grade pupils regardless of film narration type or listenability difficulty level. —*John Moldstad*

KEESLAR, OREON PIERRE. *Contributions of Instructional Films to the Teaching of High School Science.* Doctor's thesis, Ann Arbor, Michigan: School of Education, University of Michigan, 1945. 320 p. (Typewritten)

Purpose: (a) To derive a comprehensive list of the elements of scientific method which would be suitable for instructional purposes in the secondary school. (b) To determine the extent to which certain selected instructional films in science contribute, particularly by means of the unique and the specialized functions of the medium, to the realization of three of the major objectives of science education in the secondary school: namely, to effect an understanding of scientific principles that will function in the everyday life and activities of the student; to teach the elements of scientific method as skills to be employed in the solution of problems; and to develop the scientific attitudes. (c) To determine by controlled experiment whether the viewing of certain selected motion

pictures, without class discussion, increases the senior high school student's understanding of the elements of scientific method as evidenced by an improved score upon an original test prepared to measure such understandings.

Procedure: After a careful perusal of the literature, 54 elements of scientific method were developed and sent to 22 research scientists of the University of Michigan for validation. On the basis of questionnaire results, a list of 10 elements of scientific method suitable for instructional purposes in the secondary schools was developed.

Twenty-four science films rated as "excellent" by both *The Film Utilization Guide* and *Selected Educational Motion Pictures* were critically analyzed in such a manner that each individual scene of each film could be judged as to (a) the unique and/or specialized functions of the motion picture medium which are served by the scenes, and (b) the major objectives of science teaching in the secondary school to which the film contributes.

Findings and Conclusions: On the basis of 10 distinct findings related to the film analysis, the author concludes that:

1. "As teaching tools, the best instructional films now available in science fail to provide definite means of effecting important major aims of science teaching although the opportunities for teaching these objectives by means of motion pictures are numerous."

2. "There is evidence which indicates that the film producers not only fail to provide the means of achieving the most important objectives of science teaching to the extent possible through the motion picture medium, but that they also fail to use optimally the unique and specialized functions of which the medium is capable."—*John Moldstad*

GREENHILL, L. P. *The Evaluation of Instructional Films by a Trained Panel Using a Film Analysis Form.* Technical Report SDC 269-7-57. Research by the Instructional Film Research Program, Pennsylvania State University for the Special Devices Center, Office of Naval Research, Port Washington, L. I., N. Y. 68 p. September 20, 1955.

Purpose: The purpose of this research was to develop a film appraisal form incorporating important variables discovered in the Instructional Film Research Program which could be used for preproduction or prerelease evaluation of films. A second purpose was the development of a panel of judges to make reliable and valid judgments concerning the effectiveness of films using the film appraisal form.

Procedure: Extant film evaluation forms were reviewed and Form A was developed. Revised forms B, C, D, E, and F were prepared to correct inadequacies revealed through their use. A parallel film analysis form was developed for use by students. Three films were evaluated by a trained panel and by students. The panel was trained by demonstrating to them various film characteristics which had been shown by previous research to be necessary and desirable features of effective films. After discussion of the research results panel members were given practice in making ratings using *Film Analysis Form F.*

Results: The correlation between panel and student ratings suggested that a trained panel can effectively use *Form F* to evaluate films. Experience with the *Film Analysis Form F* and *Trainee Evaluation Form A* showed the desirability of careful selection and training of panel members.—*L. Twyford*

GREENHILL, L. P. *The Recording of Audience Reactions by Infra-Red Photography.* Technical Report SDC 269-7-56. Research by the Instructional Film Research Program, Pennsylvania State University for the Special Devices Center, Office of Naval Research, Port Washington, L. I., N. Y., 11 p. September 20, 1955.

Purpose: The purpose of this research was to develop a practical means of obtaining recordings of audience reactions that could be readily related to film content. Assessment of learning from films usually requires the preparation and administration of tests which is a time consuming procedure. One method of detecting in a darkened room the reactions of students to film sequences is that of taking infrared photographs. By counting the number of persons watching the screen it is possible to obtain a measure presumably related to the effectiveness of that sequence. Methods previously employed for making these infra-red photographs have generally been too expensive to use and difficult to apply.

Procedure: The needs for infrared photography were analyzed and it was determined that (a) the method should permit relatively continuous records of reactions, (b) records should be easily synchronized with the film, (c) it should be economical, (d) it should be portable, (e) it should permit the making of recordings at very low levels of illumination. Based on these needs it was possible to select equipment and develop methods for making film records of audience reaction. The procedure was demonstrated with children watching puppets.

Results: The technique for infrared recording made use of high speed infrared film, time lapse photography on 16 mm films at one frame a second, infrared reflector heat lamps with ruby glass, mirror reflection of the picture on the screen for synchronization purposes, and a special projector for analyzing the scenes. Application of this technique is described by A. E. Siegel in *The Effect of Film-Mediated Fantasy Aggression on Strength of Aggressive Drive in Young Children.* Unpublished PhD dissertation. Stanford University, 1955. —*L. Twyford*

CONTENT ANALYSIS

WAGNER, ROBERT WALTER. *"Design in the Educational Film."* *Educational Research Bulletin* 33: 141-48; September 1954.

Purpose: To find and test the meaning of what is proved, practiced, and surmised about certain elements in the design of effective educational motion pictures, and to lay a firmer foundation for present production and for future research.

Procedure: Twenty-one most used films listed in the Educational Film Library Association's 1953 publication, *Report on Most Used Films,* were analyzed with respect to structural organization, audience involvement, level of verbalization and rate of delivery, camera interpretation, color, music and sound effects, optical and special effects, and animation. Scripts and teacher's guides as well as the actual films were used in making the analysis. Results of the film analysis were compared with nonexperimental evidence and with experimental evidence on the same elements.

Results: (a) School films tend to be shorter than adult films with an average running time of 15 minutes as compared to 22 minutes for adult films and an average scene length of seven seconds as compared to 10 seconds for the adult films. (b) Only four of the 21 films studied had an introduction, only two contained a summary, and in only six were various forms of repetition—verbal, pictorial, or musical—used to any degree. (c) As measured by the Dale-Chall formula, readability levels of the film narrations were found to be at or near the theoretical reading level of the audience for which they were intended. (d) The average rate of verbal delivery was below the 130 words a minute commonly considered to be a normal rate of speech. (e) All of the films analyzed contained one or more elements related to audience involvement. (f) Straightforward simple camera interpretation characterized the elementary school films while the camera was used more interpretively in the adult films. (g) Color was found in only six of the 21 films analyzed and animation was used in only six films. (h) Sound effects were used in all but one of the 21 films, as were optical effects. (i) Seven of the 21 films included special effects such as "zooms," double exposures, montages, and such, with the greater emphasis on these techniques evidenced in the adult films.

Conclusions and Recommendations: The author concludes that there is generally a close agreement between the actual design of these 21 widely used films and certain empirical and experimental evidence related to film production, and offers 10 observations or suggestions with respect to the well-designed educational film.—*John Moldstad*

AUDIO-VISUAL ADMINISTRATION

BARNARD, DAVID P. *A Study of the Audio-Visual Administrative and Supervisory Functions in Selected Schools of Vocational and Adult Education in Wisconsin.* Doctor's thesis. Bloomington, Indiana: School of Education, Indiana University, 456 p. (Typewritten)

Purpose: To determine the status of audio-visual administrative and supervisory functions in selected schools of vocational and adult education in Wisconsin and to make recommendations for the improvement or establishment of these functions.

Procedure: On the basis of a study of the literature in the fields of audio-visual administration and vocational education, the author developed interview guides for audio-visual coordinators and for instructors in vocational and adult educational school programs. Using these guides, the author interviewed coordinators and instructors in 15 randomly selected vocational and adult schools in Wisconsin. Each school's data was presented individually in case study form, and a comparative analysis of the data was also made.

Results: (a) There was almost no administration or supervision of audio-visual functions for evening school programs. (b) Audio-visual coordinators did not have sufficient time to devote to their work. (c) No organized procedures existed for previewing, evaluating, and selecting materials. (d) There were no materials purchase policies and no long-range planning for the purchase of equipment and materials. (e) Audio-visual inservice training was casual and relatively unplanned. (f) Audio-visual budgets were not based upon planned needs of frequency-of-use and amortization. (g) There was no administrative or supervisory plan for production of audio-visual materials. (h) In this area, there was virtually no audio-visual leadership at the state level.

Recommendations: On the basis of the data, the author suggests that the Wisconsin Vocational and Adult Schools should "(a) recognize that audio-visual services require the administration and supervision of trained personnel, (b) develop operational plans for audio-visual administration and supervision, (c) encourage consultation of instructors with the coordinators, (d) formulate rental and/or purchase policies, (e) modernize the State Board Film Library, (f) encourage all instructors to operate equipment, (g) provide audio-visual services to night school staffs, (h) develop record systems, (i) examine their physical facilities in terms of the audio-visual center concept, (j) encourage coordinators to upgrade utilization practices, (k) organize and operate systematic inservice training programs, (l) make available audio-visual resource materials, (m) recommend that a state board staff member be appointed to provide audio-visual leadership, (n) employ well-prepared, dynamic audio-visual coordinators, and (o) encourage local production of audio-visual materials."—*John Moldstad*

OTHER PUBLICATIONS

Department of Audio-Visual Instruction
National Education Association of the United States
1201 Sixteenth Street, Northwest, Washington 6, D. C.

A Directory of Graduate AV Programs for the Professional Education of Audio-Visual Supervisors, Directors, and Building Coordinators
Price, $0.50

National Tape Recording Catalog
Price, $0.50

1955 Supplement—National Tape Recording Catalog
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The School Administrator and His Audio-Visual Program—1954 Yearbook
Price, $3.75

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